

SEQUENCE LISTING

<110> Roberts, R. Michael
Green, Jonathan
Xie, Sancei

<120> COMPOSITIONS AND METHODS FOR EARLY PREGNANCY DIAGNOSIS

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ctgtctttgc cttctacttg aacacatgcc agccggaagg ctctgtgggt atgtttgggt 660
gagtggacca ccgctactac aagggagagc tcaactggat accagtgtcc caaactcgct 720
actggcagat aagcatgaac cgcacagaca tgaacgggaa tgttactgct tgttctctgt 780
gatgtcagcc ccttttggac accgggacat caatgatcca tggcccaaca agactgatca 840
ccaactacca caagctcatg aacgcaggc accagggttc ggagtatgtg gttctcatgt 900
atgccgtcaa gacctgcct cctgtcatct tcaacatcaa tggcatgcac tatccactgc 960
cccctcaagc ctacatcacc aaggtctaaa acttctgct tagcatctt catgggggca 1020
cagaaactag ctctccagag acctggatcc tgggtggcgt ctctctgaga cagtacttct 1080
cagtttttga tcgaagaat gacagtattg gccctggcga ggtgtaaatg 1130

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<210> 13
 <211> 1173
 <212> DNA
 <213> bovidae

<400> 13
 cccaagctta tgaagtggct tgtgtctctc ggcgtggtgg cctctctcaga gtgcataatc 60
 atttttgctc taagaaaaa gaagaccttg cgagaaaccc tgaggggaaa aaacttgctg 120
 aacaatttcc tggaggaaaca agcttacaga ctgtccaaga atgactccaa aataactatt 180
 caccctctga ggaactatct ggatactgcc tacgtgggta acatcaccat tggaaacccc 240
 cctcaggagt tccgggtcgt ctttgacaca ggcctcagta acttgtgggt gccctgcatt 300
 acctgtacca gtccagcccg ttatacacac aaaaccttca atcctcaaaa ttcttcaagc 360
 ttccgggaag taggctcgcc tatcaccatc ttctatggat ctgggataat tcagggattt 420
 ctgtgctctg acaccgttct gatcgggaac cttgttagcc ttaaacagtc gtttggccta 480
 agccaggagg aatatgggtt tgatggtgca ccttttgatg gcgtcctggg cttggcctac 540
 cctccatcca gcatcaaaag tatcatcccc atctttgaca acttgtgggt gcacgggtgcc 600
 tttctgagc ctgtcttctg cttctacttg aacacaaaca agccagagg cagtgtggtg 660
 atgtttggtg ggggtggacca ccgtacttac aaggagagc tcaactggat accagtgtcc 720
 caaactagcc attggcagat aagcatgaac aacatcagca tgaatgggac tgtgacggct 780
 tgttctgtg gatgtgaggc ccttttggac accgggacat caatgatcta cgcccaaca 840
 aaactggtca ccaacatcca caagctcatg aacgccaggc ttgagaattc tagtatgtg 900
 gtttcatgct gctgtgtcaa gaccctgcct cctgtcatct tcaacatcaa tggcatcgac 960
 tatccactgc gtccctcaagc ctacatcctc aagattcaaa acaactgccy cagcgtcttt 1020
 caaggaggca cagaaaaatg ctctctaaac acctggaatc ttgtgtgat ctctctgagg 1080
 cagtactctc cggtttttga tcgtaaaaat agaaggattt gctggcacag gtgggtaccg 1140
 actacaagga cgacgatgac aagtaagctt ccg 1173

<210> 14
 <211> 1176
 <212> DNA
 <213> bovidae

<400> 14
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 aaaatacctc taaggagagt gaagaccatg agcaataacc ccaagtggaa aaacatgctg 120
 aacaatttcc tgaagaagca tccttacaga ttgtcccaga ttctcttctg tggctcaaat 180
 ctactactc accactgat gaactctctg gatttgcctc acctgggtaa catcaccatt 240
 ggaacacccc ctccaggaatt ccagggttctc ttgacacag gctcatctga ctgtgggtg 300
 cctctctctc tgtgcaacag ctcaacctgt gctaaacacg ttatgttccag acatcgtctg 360
 tcttccacct accggcctac caataagacc ttcatgatct tctatgcagt tgggaaaaat 420
 gaaggagtgt ttgttcgtga cacagtctcg attggggacc ttgtaagtgc gaccagacg 480
 tttggtctaa gcatgtcaga aactgggttt gagaacacaa ctcttgatgg catcttgggc 540
 ttgagctacc ccaacacatc ctgctttgga accatcccc tcttttgaca gctgaagaat 600
 gaaggtgcca ttcttgagcc tgtactacat agtgtgagac gcaaatgata caggaggggc 660
 agtgtagtga tgtttggtgg tgtggaccac agttactaca agggagagct caactgggta 720
 cttattgatca aagcagggca ctggagtgtg cgtgtggaca gcatcaccat gaaaagagag 780
 gtatttgctt gttctgacgg ctgcagggcc ctggtggaca cgggttcatc acatatccaa 840
 ggcgccaggaa gactgatgca taactgacag aagctgatag gcacctgccc acagggatcc 900
 atgcactatg ttccatgttc tcgggtcact acctgcctc ctattatctt caccatcaac 960
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 tattccact ttcaagggca cactatgagt tcactacag agacctggat cctgggtgat 1080
 gtcttctga gtacgatatt ctggtctctt gatcaggaa atgacaggat tggcctggga 1140
 caggtgggta ccgactacaa ggacacgat gaaagt 1176

<210> 15
 <211> 1360
 <212> DNA
 <213> Felis domestica

<220>
 <223> Description of Artificial Sequence:PCR primer

 <400> 18
 cctcttttgc cttctacttg a 21

 <210> 19
 <211> 29
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:PCR primer

 <400> 19
 gcgctcgagt tacactgccc gtgccaggc 29

 <210> 20
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:PCR primer

 <400> 20
 tgggtaacat caccattgga a 21

 <210> 21
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:PCR primer

 <400> 21
 tttctgagcc tgtttttgcc 20

 <210> 22
 <211> 22
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:PCR primer

 <400> 22
 tgggtaacat caccattgga ac 22

 <210> 23
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:PCR primer

<400> 23

caaacatcac cacactgccc tcc

23

<210> 24

<211> 380

<212> PRT

<213> bovidae

<400> 24

Met Lys Trp Leu Val Leu Leu Gly Leu Val Ala Phe Ser Glu Cys Ile
1 5 10 15

Val Lys Ile Pro Leu Arg Arg Leu Lys Thr Met Arg Asn Val Val Ser
20 25 30

Gly Lys Asn Met Leu Asn Asn Phe Leu Lys Glu His Ala Tyr Ser Leu
35 40 45

Ser Gln Ile Ser Phe Arg Gly Ser Asn Leu Thr Thr His Pro Leu Arg
50 55 60

Asn Ile Lys Asp Leu Val Tyr Met Gly Asn Ile Thr Ile Gly Thr Pro
65 70 75 80

Pro Gln Glu Phe Gln Val Val Phe Asp Thr Ala Ser Ser Asp Leu Trp
85 90 95

Val Pro Ser Asp Phe Cys Thr Ser Pro Ala Cys Ser Thr His Val Arg
100 105 110

Phe Arg His Leu Gln Ser Ser Thr Phe Arg Leu Thr Asn Lys Thr Phe
115 120 125

Arg Ile Thr Tyr Gly Ser Gly Arg Met Lys Gly Val Val His Asp
130 135 140

Thr Val Arg Ile Gly Asn Leu Val Ser Thr Asp Gln Pro Phe Gly Leu
145 150 155 160

Ser Ile Glu Glu Tyr Gly Phe Glu Gly Arg Ile Tyr Asp Gly Val Leu
165 170 175

Gly Leu Asn Tyr Pro Asn Ile Ser Phe Ser Gly Ala Ile Pro Ile Phe
180 185 190

Asp Lys Leu Lys Asn Gln Arg Ala Ile Ser Glu Pro Val Phe Ala Phe
195 200 205

Tyr Leu Ser Lys Asp Glu Arg Glu Gly Ser Val Val Met Phe Gly Gly
210 215 220

Ile Thr Cys Thr Ser Pro Ala Cys Tyr Thr His Lys Thr Phe Asn Pro
 100 105 110
 Gln Asn Ser Ser Ser Phe Arg Glu Val Gly Ser Pro Ile Thr Ile Phe
 115 120 125
 Tyr Gly Ser Gly Ile Ile Gln Gly Phe Leu Gly Ser Asp Thr Val Arg
 130 135 140
 Ile Gly Asn Leu Val Ser Pro Glu Gln Ser Phe Gly Leu Ser Leu Glu
 145 150 155 160
 Glu Tyr Gly Phe Asp Ser Leu Pro Phe Asp Gly Ile Leu Gly Leu Ala
 165 170 175
 Phe Pro Ala Met Gly Ile Glu Asp Thr Ile Pro Ile Phe Asp Asn Leu
 180 185 190
 Trp Ser His Gly Ala Phe Ser Glu Pro Val Phe Ala Phe Tyr Leu Asn
 195 200 205
 Thr Asn Lys Pro Glu Gly Ser Val Val Met Phe Gly Gly Val Asp His
 210 215 220
 Arg Tyr Tyr Lys Gly Glu Leu Asn Trp Ile Pro Val Ser Gln Thr Ser
 225 230 235 240
 His Trp Gln Ile Ser Met Asn Asn Ile Ser Met Asn Gly Thr Val Thr
 245 250 255
 Ala Cys Ser Cys Gly Cys Glu Ala Leu Leu Asp Thr Gly Thr Ser Met
 260 265 270
 Ile Tyr Gly Pro Thr Lys Leu Val Thr Asn Ile His Lys Leu Met Asn
 275 280 285
 Ala Arg Leu Glu Asn Ser Glu Tyr Val Val Ser Cys Asp Ala Val Lys
 290 295 300
 Thr Leu Pro Pro Val Ile Phe Asn Ile Asn Gly Ile Asp Tyr Pro Leu
 305 310 315 320
 Arg Pro Gln Ala Tyr Ile Ile Lys Ile Gln Asn Ser Cys Arg Ser Val
 325 330 335
 Phe Gln Gly Gly Thr Glu Asn Ser Ser Leu Asn Thr Trp Ile Leu Gly
 340 345 350
 Asp Ile Phe Leu Arg Gln Tyr Phe Ser Val Phe Asp Arg Lys Asn Arg
 355 360 365
 Arg Ile Gly Leu Ala Pro Ala Val
 370 375

<210> 26
 <211> 381
 <212> PRT
 <213> bovidae

<400> 26

Met Asp Asp Leu Val Leu Leu Gly Leu Val Ala Phe Ser Glu Cys Ile
 1 5 10 15
 Val Lys Ile Pro Leu Arg Arg Val Lys Thr Met Arg Asn Thr Val Ser
 20 25 30
 Gly Lys Asn Ile Leu Asn Asn Ile Leu Lys Glu His Val Tyr Arg Leu
 35 40 45
 Ser Gln Ile Ser Phe Arg Gly Ser Asn Leu Thr Thr His Pro Leu Arg
 50 55 60
 Asn Ile Lys Asp Leu Ile Tyr Val Gly Asn Ile Thr Ile Gly Thr Pro
 65 70 75 80
 Pro Gln Glu Phe Gln Val Val Phe Asp Thr Gly Ser Ser Asp Phe Trp
 85 90 95
 Val Pro Ser Asp Phe Cys Thr Ser Arg Ala Cys Ser Thr His Val Arg
 100 105 110
 Phe Arg His Leu Gln Ser Ser Thr Phe Arg Leu Thr Asn Lys Thr Phe
 115 120 125
 Arg Ile Thr Tyr Gly Ser Gly Arg Met Lys Gly Val Val Ala His Asp
 130 135 140
 Thr Val Arg Ile Gly Asp Leu Val Ser Thr Asp Gln Pro Phe Gly Leu
 145 150 155 160
 Ser Val Glu Glu Tyr Gly Phe Glu Gly Arg Ala Tyr Tyr Asp Gly Val
 165 170 175
 Leu Gly Leu Asn Tyr Pro Asn Ile Ser Phe Ser Gly Ala Ile Pro Ile
 180 185 190
 Phe Asp Asn Leu Lys Asn Gln Gly Ala Ile Ser Glu Pro Val Phe Ala
 195 200 205
 Ile Leu Leu Ser Lys Asp Glu Gln Glu Gly Ser Val Val Met Phe Gly
 210 215 220
 Gly Val Asp His Arg Tyr Tyr Glu Gly Glu Leu Asn Trp Val Pro Leu
 225 230 235 240
 Ile Glu Ala Gly Asp Trp Ile Ile His Met Asp Arg Ile Ser Met Lys
 245 250 255

00273454 0010000

Arg Lys Ile Ile Ala Cys Ser Gly Ser Cys Glu Ala Ile Val Asp Thr
 260 265 270
 Gly Thr Ser Ala Ile Glu Gly Pro Arg Lys Leu Val Asn Lys Ile His
 275 280 285
 Lys Leu Ile Gly Ala Arg Pro Arg His Ser Lys Tyr Tyr Ile Ser Cys
 290 295 300
 Ser Ala Val Asn Thr Leu Pro Ser Ile Ile Phe Thr Ile Asn Gly Ile
 305 310 315 320
 Asn Tyr Pro Cys Pro Gly Arg Ala Tyr Val Leu Lys Asp Ser Arg Gly
 325 330 335
 Arg Cys Tyr Ser Met Phe Gln Glu Asn Lys Val Ser Ser Ser Thr Glu
 340 345 350
 Thr Trp Ile Leu Gly Asp Val Phe Leu Arg Val Tyr Phe Ser Val Phe
 355 360 365
 Asp Arg Gly Asn Asp Arg Ile Gly Leu Ala Arg Ala Val
 370 375 380
 <210> 27
 <211> 380
 <212> PRT
 <213> bovidae
 <400> 27
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 Val Lys Ile Pro Leu Arg Arg Val Lys Thr Met Thr Lys Thr Leu Ser
 20 25 30
 Gly Lys Asn Met Leu Asn Asn Phe Val Lys Glu His Ala Tyr Arg Leu
 35 40 45
 Ser Gln Ile Ser Phe Arg Gly Ser Asn Leu Thr Ile His Pro Leu Arg
 50 55 60
 Asn Ile Arg Asp Phe Phe Tyr Val Gly Asn Ile Thr Ile Gly Thr Pro
 65 70 75 80
 Pro Gln Glu Phe Gln Val Ile Phe Asp Thr Gly Ser Ser Glu Leu Trp
 85 90 95
 Val Pro Ser Ile Phe Cys Asn Ser Ser Thr Cys Ser Lys His Asp Arg
 100 105 110
 Phe Arg His Leu Glu Ser Ser Thr Phe Arg Leu Ser Arg Arg Thr Phe
 115 120 125

Ser Ile Thr Tyr Gly Ser Gly Arg Ile Glu Ala Leu Val Val His Asp
 130 135 140
 Thr Val Arg Ile Gly Asp Leu Val Ser Thr Asp Gln Gln Phe Gly Leu
 145 150 155 160
 Cys Leu Glu Glu Ser Gly Phe Glu Gly Met Arg Phe Asp Gly Val Leu
 165 170 175
 Gly Leu Ser Tyr Thr Asn Ile Ser Pro Ser Gly Ala Ile Pro Ile Phe
 180 185 190
 Tyr Lys Leu Lys Asn Glu Gly Ala Ile Ser Glu Pro Val Phe Ala Phe
 195 200 205
 Tyr Leu Ser Lys Asp Glu Arg Glu Gly Ser Val Val Met Phe Gly Gly
 210 215 220
 Ala Asp His Arg Tyr Tyr Lys Gly Glu Leu Asn Trp Ile Pro Leu Met
 225 230 235 240
 Lys Ala Gly Asp Trp Ser Val His Met Asp Arg Ile Ser Met Lys Arg
 245 250 255
 Lys Val Ile Ala Cys Ser Gly Gly Cys Lys Ala Leu Val Asp Thr Gly
 260 265 270
 Ser Ser Asp Ile Val Gly Pro Ser Thr Leu Val Asn Asn Ile Trp Lys
 275 280 285
 Leu Ile Gly Ala Thr Pro Gln Gly Ser Glu His Tyr Val Ser Cys Ser
 290 295 300
 Ala Val Asn Ser Leu Pro Ser Ile Ile Phe Thr Ile Lys Ser Asn Asn
 305 310 315 320
 Tyr Arg Val Pro Gly Gln Ala Tyr Ile Leu Lys Asp Ser Arg Gly Arg
 325 330 335
 Cys Phe Thr Ala Phe Lys Gly His Gln Gln Ser Ser Ser Thr Glu Met
 340 345 350
 Trp Ile Leu Gly Asp Val Phe Leu Arg Leu Tyr Phe Ser Val Phe Asp
 355 360 365
 Arg Arg Lys Asp Arg Ile Gly Leu Ala Thr Lys Val
 370 375 380

<210> 28
 <211> 377
 <212> PRT
 <213> bovidae

034092

17

92

Gly	Lys	Asn	Met	Leu	Asn	Asn	Phe	Leu	Lys	Glu	Asp	Pro	Tyr	Arg	Leu	35	40	45	
Ser	His	Ile	Ser	Phe	Arg	Gly	Ser	Asn	Leu	Thr	Ile	His	Pro	Leu	Arg	50	55	60	
Asn	Ile	Arg	Asp	Ile	Phe	Tyr	Val	Gly	Asn	Ile	Thr	Ile	Gly	Thr	Pro	65	70	75	80
Pro	Gln	Glu	Phe	Gln	Val	Ile	Phe	Asp	Thr	Gly	Ser	Ser	Asp	Leu	Trp	85	90	95	
Val	Pro	Ser	Ile	Asp	Cys	Asn	Ser	Thr	Ser	Cys	Ala	Thr	His	Val	Arg	100	105	110	
Phe	Arg	His	Leu	Gln	Ser	Ser	Thr	Phe	Arg	Pro	Thr	Asn	Lys	Thr	Phe	115	120	125	
Arg	Ile	Ile	Tyr	Gly	Ser	Gly	Arg	Met	Asn	Gly	Val	Ile	Ala	Tyr	Asp	130	135	140	
Thr	Val	Arg	Ile	Gly	Asp	Leu	Val	Ser	Thr	Asp	Gln	Pro	Phe	Gly	Leu	145	150	155	160
Ser	Val	Glu	Glu	Tyr	Gly	Phe	Ala	His	Lys	Arg	Phe	Asp	Gly	Ile	Leu	165	170	175	
Gly	Leu	Asn	Tyr	Trp	Asn	Leu	Ser	Trp	Ser	Lys	Ala	Met	Pro	Ile	Phe	180	185	190	
Asp	Lys	Leu	Lys	Asn	Glu	Gly	Ala	Ile	Ser	Glu	Pro	Val	Phe	Ala	Phe	195	200	205	
Tyr	Leu	Ser	Asn	Ile	Thr	Met	Asn	Arg	Glu	Val	Ile	Ala	Cys	Ser	Glu	210	215	220	
Gly	Cys	Ala	Ala	Leu	Val	Asp	Thr	Gly	Ser	Ser	Asn	Ile	Gln	Gly	Pro	225	230	235	240
Gly	Arg	Leu	Ile	Asp	Asn	Ile	Gln	Arg	Ile	Ile	Gly	Ala	Thr	Pro	Arg	245	250	255	
Gly	Ser	Lys	Tyr	Tyr	Val	Ser	Cys	Ser	Ala	Val	Asn	Ile	Leu	Pro	Ser	260	265	270	
Ile	Ile	Phe	Thr	Ile	Asn	Gly	Val	Asn	Tyr	Pro	Val	Pro	Pro	Arg	Ala	275	280	285	
Tyr	Ile	Leu	Lys	Asp	Ser	Arg	Gly	His	Cys	Tyr	Thr	Thr	Phe	Lys	Glu	290	295	300	
Lys	Arg	Val	Arg	Arg	Ser	Thr	Glu	Ser	Trp	Val	Leu	Gly	Glu	Val	Phe	305	310	315	320

Gly Asn Asp Arg Ile Gly Leu Ala Arg Ala Val
370 375

<210> 33
<211> 380
<212> PRT
<213> bovidae

<400> 33
Met Lys Trp Leu Gly Leu Leu Gly Leu Val Ala Leu Ser Glu Cys Met
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Val Ile Ile Pro Leu Arg Gln Met Lys Thr Met Arg Glu Thr Leu Arg
20 25 30
Glu Arg His Leu Leu Thr Asn Phe Ser Glu Glu His Pro Tyr Asn Leu
35 40 45
Ser Gln Lys Ala Ala Asn Asp Gln Asn Ile Ile Tyr His His Pro Leu
50 55 60
Arg Ser Tyr Lys Asp Phe Ser Tyr Ile Gly Asn Ile Asn Ile Gly Thr
65 70 75 80
Pro Pro Gln Glu Phe Gln Val Leu Phe Asp Thr Gly Ser Ser Ser Leu
85 90 95
Trp Val Pro Ser Ile Tyr Cys Gln Ser Ser Ser Cys Tyr Lys His Asn
100 105 110
Ser Phe Val Pro Cys Asn Ser Ser Thr Phe Lys Ala Thr Asn Lys Ile
115 120 125
Phe Asn Thr Asn Tyr Thr Ala Thr Ser Ile Lys Gly Tyr Leu Val Tyr
130 135 140
Asp Thr Val Arg Ile Gly Asn Leu Val Ser Val Ala Gln Pro Phe Gly
145 150 155 160
Leu Ser Leu Lys Glu Phe Gly Phe Asp Asp Val Pro Phe Asp Gly Ile
165 170 175
Leu Gly Leu Gly Tyr Pro Arg Arg Thr Ile Thr Gly Ala Asn Pro Ile
180 185 190
Phe Asp Asn Leu Trp Lys Gln Gly Val Ile Ser Glu Pro Val Phe Ala
195 200 205
Phe Tyr Leu Ser Ser Gln Lys Glu Asn Gly Ser Val Val Met Phe Gly
210 215 220
Gly Val Asn Arg Ala Tyr Tyr Lys Gly Glu Leu Asn Trp Val Pro Val
225 230 235 240

Phe Asp His His Lys Ser Ser Thr Phe Arg Leu Thr Arg Arg Pro Phe
 115 120 125
 His Ile Leu Tyr Gly Ser Gly Met Met Asn Gly Val Leu Ala Tyr Asp
 130 135 140
 Thr Val Arg Ile Gly Lys Leu Val Ser Thr Asp Gln Pro Phe Gly Leu
 145 150 155 160
 Ser Leu Gln Gln Phe Gly Phe Asp Asn Ala Pro Phe Asp Gly Val Leu
 165 170 175
 Gly Leu Ser Tyr Pro Ser Leu Ala Val Pro Gly Thr Ile Pro Ile Phe
 180 185 190
 Asp Lys Leu Lys Gln Gln Gly Ala Ile Ser Glu Pro Ile Phe Ala Phe
 195 200 205
 Tyr Leu Ser Thr Arg Lys Glu Asn Gly Ser Val Leu Met Leu Gly Gly
 210 215 220
 Val Asp His Ser Tyr His Lys Gly Lys Leu Asn Trp Ile Pro Val Ser
 225 230 235 240
 Gln Thr Lys Ser Trp Leu Ile Thr Val Asp Arg Ile Ser Met Asn Gly
 245 250 255
 Arg Val Ile Gly Cys Glu His Gly Cys Glu Ala Leu Val Asp Thr Gly
 260 265 270
 Thr Ser Leu Ile His Gly Pro Ala Arg Pro Val Thr Asn Ile Gln Lys
 275 280 285
 Phe Ile His Ala Met Pro Tyr Gly Ser Glu Tyr Met Val Leu Cys Pro
 290 295 300
 Val Ile Ser Ile Leu Pro Pro Val Ile Phe Thr Ile Asn Gly Ile Asp
 305 310 315 320
 Tyr Ser Val Pro Arg Glu Ala Tyr Ile Gln Lys Ile Ser Asn Ser Leu
 325 330 335
 Cys Leu Ser Thr Phe His Gly Asp Asp Thr Asp Gln Trp Ile Leu Gly
 340 345 350
 Asp Val Phe Leu Arg Leu Tyr Phe Ser Val Tyr Asp Arg Gly Asn Asn
 355 360 365
 Arg Ile Gly Leu Ala Pro Ala Val
 370 375

<210> 35
 <211> 375
 <212> PRT
 <213> bovidae

<400> 35
 Met Lys Trp Leu Val Leu Leu Gly Leu Val Ala Leu Ser Glu Cys Ile
 1 5 10 15
 Val Ile Leu Pro Leu Arg Lys Met Lys Thr Leu Arg Glu Thr Leu Arg
 20 25 30
 Glu Lys Asn Leu Leu Asn Asn Phe Leu Glu Glu Arg Ala Tyr Arg Leu
 35 40 45
 Ser Lys Lys Asp Ser Lys Ile Thr Ile His Pro Leu Lys Asn Tyr Leu
 50 55 60
 Asp Met Ala Tyr Val Gly Asn Ile Thr Ile Gly Thr Pro Pro Gln Glu
 65 70 75 80
 Phe Arg Val Val Phe Asp Thr Gly Ser Ala Asp Leu Trp Val Pro Ser
 85 90 95
 Ile Ser Cys Val Ser Pro Ala Cys Tyr Thr His Lys Thr Phe Asn Leu
 100 105 110
 His Asn Ser Ser Ser Phe Gly Gln Thr His Gln Pro Ile Ser Ile Ser
 115 120 125
 Tyr Gly Pro Gly Ile Ile Gln Gly Phe Leu Gly Ser Asp Thr Val Arg
 130 135 140
 Ile Gly Asn Leu Val Ser Leu Lys Gln Ser Phe Gly Leu Ser Gln Glu
 145 150 155 160
 Glu Tyr Gly Phe Asp Gly Ala Pro Phe Asp Gly Val Leu Gly Leu Ala
 165 170 175
 Tyr Pro Ser Ile Ser Ile Lys Gly Ile Ile Pro Ile Phe Asp Asn Leu
 180 185 190
 Trp Ser Gln Gly Ala Phe Ser Glu Pro Val Phe Ala Phe Tyr Leu Asn
 195 200 205
 Thr Cys Gln Pro Glu Gly Ser Val Val Met Phe Gly Gly Val Asp His
 210 215 220
 Arg Tyr Tyr Lys Gly Glu Leu Asn Trp Ile Pro Val Ser Gln Thr Arg
 225 230 235 240
 Tyr Trp Gln Ile Ser Met Asn Arg Ile Ser Met Asn Gly Asn Val Thr
 245 250 255

002721511 "034000

Ala Cys Ser Arg Gly Cys Gln Ala Leu Leu Asp Thr Gly Thr Ser Met
260 265 270

Ile His Gly Pro Thr Arg Leu Ile Thr Asn Ile His Lys Leu Met Asn
275 280 285

Ala Arg His Gln Gly Ser Glu Tyr Val Val Ser Cys Asp Ala Val Lys
290 295 300

Thr Leu Pro Pro Val Ile Phe Asn Ile Asn Gly Ile Asp Tyr Pro Leu
305 310 315 320

Pro Pro Gln Ala Tyr Ile Thr Lys Ala Gln Asn Phe Cys Leu Ser Ile
325 330 335

Phe His Gly Gly Thr Glu Thr Ser Ser Pro Glu Thr Trp Ile Leu Gly
340 345 350

Gly Val Phe Leu Arg Gln Tyr Phe Ser Val Phe Asp Arg Arg Asn Asp
355 360 365

Ser Ile Gly Leu Ala Gln Val
370 375

<210> 36
<211> 391
<212> PRT
<213> bovidae

<400> 36

Met Lys Trp Leu Val Leu Leu Gly Leu Val Ala Leu Ser Glu Cys Ile
1 5 10 15

Val Ile Leu Pro Leu Lys Lys Met Lys Thr Leu Arg Glu Thr Leu Arg
20 25 30

Glu Lys Asn Leu Leu Asn Asn Phe Leu Glu Glu Gln Ala Tyr Arg Leu
35 40 45

Ser Lys Asn Asp Ser Lys Ile Thr Ile His Pro Leu Arg Asn Tyr Leu
50 55 60

Asp Thr Ala Tyr Val Gly Asn Ile Thr Ile Gly Thr Pro Pro Gln Glu
65 70 75 80

Phe Arg Val Val Phe Asp Thr Gly Ser Ala Asn Leu Trp Val Pro Cys
85 90 95

Ile Thr Cys Thr Ser Pro Ala Cys Tyr Thr His Lys Thr Phe Asn Pro
100 105 110

Gln Asn Ser Ser Ser Phe Arg Glu Val Gly Ser Pro Ile Thr Ile Phe
115 120 125

<210> 37
 <211> 392
 <212> PRT
 <213> bovidae

<400> 37

Met	Lys	Trp	Leu	Val	Leu	Leu	Ala	Leu	Val	Ala	Phe	Ser	Glu	Cys	Ile
1				5					10					15	
Ile	Lys	Ile	Pro	Leu	Arg	Arg	Val	Lys	Thr	Met	Ser	Asn	Thr	Ala	Ser
			20					25					30		
Gly	Lys	Asn	Met	Leu	Asn	Asn	Phe	Leu	Lys	Lys	His	Pro	Tyr	Arg	Leu
		35					40					45			
Ser	Gln	Ile	Ser	Phe	Arg	Gly	Ser	Asn	Leu	Thr	Thr	His	Pro	Leu	Met
	50					55					60				
Asn	Ile	Trp	Asp	Leu	Leu	Tyr	Leu	Gly	Asn	Ile	Thr	Ile	Gly	Thr	Pro
65				70						75					80
Pro	Gln	Glu	Phe	Gln	Val	Leu	Phe	Asp	Thr	Gly	Ser	Ser	Asp	Leu	Trp
				85				90						95	
Val	Pro	Ser	Leu	Leu	Cys	Asn	Ser	Ser	Thr	Cys	Ala	Lys	His	Val	Met
			100					105					110		
Phe	Arg	His	Arg	Leu	Ser	Ser	Thr	Tyr	Arg	Pro	Thr	Asn	Lys	Thr	Phe
		115					120						125		
Met	Ile	Phe	Tyr	Ala	Val	Gly	Lys	Ile	Glu	Gly	Val	Val	Val	Arg	Asp
	130					135					140				
Thr	Val	Arg	Ile	Gly	Asp	Leu	Val	Ser	Ala	Asp	Gln	Thr	Phe	Gly	Leu
145				150						155				160	
Ser	Ile	Ala	Glu	Thr	Gly	Phe	Glu	Asn	Thr	Thr	Leu	Asp	Gly	Ile	Leu
			165					170					175		
Gly	Leu	Ser	Tyr	Pro	Asn	Thr	Ser	Cys	Phe	Gly	Thr	Ile	Pro	Ile	Phe
			180					185					190		
Asp	Lys	Leu	Lys	Asn	Glu	Gly	Ala	Ile	Ser	Glu	Pro	Val	Leu	His	Ser
		195				200						205			
Val	Arg	Arg	Lys	Asp	Glu	Gln	Glu	Gly	Ser	Val	Val	Met	Phe	Gly	Gly
		210				215					220				
Val	Asp	His	Ser	Tyr	Tyr	Lys	Gly	Glu	Leu	Asn	Trp	Val	Pro	Leu	Ile
225					230					235				240	
Lys	Ala	Gly	Asp	Trp	Ser	Val	Arg	Val	Asp	Ser	Ile	Thr	Met	Lys	Arg
			245						250					255	

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260 265 270

Ser Ser His Ile Gln Gly Pro Gly Arg Leu Ile Asp Asn Val Gln Lys
275 280 285

Leu Ile Gly Thr Met Pro Gln Gly Ser Met His Tyr Val Pro Cys Ser
290 295 300

Ala Val Asn Thr Leu Pro Ser Ile Ile Phe Thr Ile Asn Ser Ile Ser
305 310 315 320

Tyr Thr Val Pro Ala Gln Ala Tyr Ile Leu Lys Gly Ser Arg Gly Arg
325 330 335

Cys Tyr Ser Thr Phe Gln Gly His Thr Met Ser Ser Ser Thr Glu Thr
340 345 350

Trp Ile Leu Gly Asp Val Phe Leu Ser Gln Tyr Phe Ser Val Phe Asp
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370 375 380

Asp Asp Asp Glu Ser Pro Lys Leu
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<210> 38

<211> 388

<212> PRT

<213> Felis domestica

<400> 38

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35 40 45

Ala Tyr Lys Phe Val Asp Ser Val Asn Leu Asp Leu Gly Ile Tyr Phe
50 55 60

Glu Pro Met Arg Asn Tyr Leu Asp Leu Ala Tyr Val Gly Thr Ile Ser
65 70 75 80

Ile Gly Thr Pro Pro Gln Glu Phe Lys Val Ile Phe Asp Thr Gly Ser
85 90 95

Ser Asp Leu Trp Val Pro Ser Ile Tyr Cys Ser Ser Pro Ala Cys Ala
100 105 110

Asn His Asn Val Phe Asn Pro Leu Arg Ser Ser Thr Phe Arg Ile Ser
 115 120 125
 Gly Arg Pro Ile His Leu Gln Tyr Gly Ser Gly Thr Met Ser Gly Phe
 130 135 140
 Leu Ala Tyr Asp Thr Val Arg Phe Gly Gly Leu Val Asp Val Ala Gln
 145 150 155 160
 Ala Phe Gly Leu Ser Leu Arg Glu Pro Gly Lys Phe Met Glu Tyr Ala
 165 170 175
 Val Phe Asp Gly Ile Leu Gly Leu Ala Tyr Pro Ser Leu Ser Leu Arg
 180 185 190
 Gly Thr Val Pro Val Phe Asp Asn Leu Trp Lys Gln Gly Leu Ile Ser
 195 200 205
 Gln Glu Leu Phe Ala Phe Tyr Leu Ser Lys Lys Asp Glu Glu Gly Ser
 210 215 220
 Val Val Met Phe Gly Gly Val Asp His Ser Tyr Ser Gly Asp Leu
 225 230 235 240
 Asn Trp Val Pro Val Ser Lys Arg Leu Tyr Trp Gln Leu Ser Met Asp
 245 250 255
 Ser Ile Ser Met Asn Gly Glu Val Ile Ala Cys Asp Gly Gly Cys Gln
 260 265 270
 Ala Ile Ile Asp Thr Gly Thr Ser Leu Leu Ile Gly Pro Ser His Val
 275 280 285
 Val Phe Asn Ile Gln Met Ile Ile Gly Ala Asn Gln Ser Tyr Ser Gly
 290 295 300
 Glu Tyr Val Val Asp Cys Asp Ala Ala Asn Thr Leu Pro Asp Ile Val
 305 310 315 320
 Phe Thr Ile Asn Gly Ile Asp Tyr Pro Val Pro Ala Ser Ala Tyr Ile
 325 330 335
 Gln Glu Gly Pro Gln Gly Thr Cys Tyr Ser Gly Phe Asp Glu Ser Gly
 340 345 350
 Asp Ser Leu Leu Val Ser Asp Ser Trp Ile Leu Gly Asp Val Phe Leu
 355 360 365
 Arg Leu Tyr Phe Thr Val Phe Asp Arg Glu Asn Asn Arg Ile Gly Leu
 370 375 380
 Ala Leu Ala Val
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<210> 39
<211> 1158
<212> DNA
<213> bovidae
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 130 135 140
 Thr Val Arg Ile Gly Asp Leu Val Ser Thr Asp Gln Pro Phe Gly Leu
 145 150 155 160
 Ser Val Glu Glu Tyr Gly Phe Ala His Lys Arg Phe Asp Gly Ile Leu
 165 170 175
 Gly Leu Asn Tyr Trp Asn Leu Ser Trp Ser Lys Ala Met Pro Ile Phe
 180 185 190
 Asp Lys Leu Lys Asn Glu Gly Ala Ile Ser Glu Pro Val Phe Ala Phe
 195 200 205
 Tyr Leu Ser Lys Asp Lys Arg Glu Gly Ser Val Val Met Phe Gly Gly
 210 215 220
 Val Asp His Arg Tyr Tyr Lys Gly Glu Leu Lys Trp Val Pro Leu Ile
 225 230 235 240
 Gln Ala Val Asp Trp Ser Val His Val Asp Arg Ile Thr Met Asn Arg
 245 250 255
 Glu Val Ile Ala Cys Ser Glu Gly Cys Ala Ala Leu Val Asp Thr Gly
 260 265 270
 Ser Ser Asn Ile Gln Gly Pro Arg Arg Leu Ile Asp Asn Ile Gln Arg
 275 280 285
 Ile Ile Gly Ala Thr Pro Arg Gly Ser Lys Tyr Tyr Val Ser Cys Ser
 290 295 300
 Ala Val Asn Ile Leu Pro Ser Ile Ile Phe Thr Ile Asn Gly Val Asn
 305 310 315 320
 Tyr Pro Val Pro Pro Arg Ala Tyr Ile Leu Lys Asp Ser Arg Gly His
 325 330 335
 Cys Tyr Thr Thr Phe Lys Glu Lys Arg Val Arg Arg Ser Thr Glu Ser
 340 345 350
 Trp Val Leu Gly Glu Val Phe Leu Arg Leu Tyr Phe Ser Val Phe Asp
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 Arg Gly Asn Asp Arg Ile Gly Leu Ala Arg Ala Val
 370 375 380

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<210> 43
 <211> 1154
 <212> DNA
 <213> bovidae

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 tgaacaattt cctgaaggag catgcttaca gactgtccca gatttctttt catgggtcaa 180
 atctaactat tcaccgcgtg agaaacatca gggatttggt ctacatgggtt aacatcacca 240
 ttggaacacc cctcaggaaa ttctctgggtg tctttgacac aggcctcatct gacttgtggg 300
 ttccctccga cttttgcacc agtccagcct gttctaaaca ctttaggttc agacatcttc 360
 agtcttccac attccggctt accaataaga ccttcagcat tgaatacga tctgggacaa 420
 tggaaggaat tgtgtctcat gacacagttc ggattgggga ccttgtaagc actgaccagc 480
 cgtttgggtc aagcatgaca gaatccgggt ttgaggggat accttttgat ggcgtcttgg 540
 gcttgaacta ccccaacata tcttctctg gagccatccc catctttgac aagctgaaga 600
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 tcaagcacta cgtttcatgt tctgcagtcg ataccctgcc ctctattacc ttcaccataa 960
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 <211> 380
 <212> PRT
 <213> bovidae

<400> 44
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 20 25 30
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 35 40 45
 Ser Gln Ile Ser Phe His Gly Ser Asn Leu Thr Ile His Pro Leu Arg
 50 55 60
 Asn Ile Arg Asp Leu Phe Tyr Met Gly Asn Ile Thr Ile Gly Thr Pro
 65 70 75 80
 Pro Gln Glu Phe Leu Val Val Phe Asp Thr Gly Ser Ser Asp Leu Trp
 85 90 95
 Val Pro Ser Asp Phe Cys Thr Ser Pro Ala Cys Ser Lys His Phe Arg
 100 105 110

114

Phe Arg His Phe Gln Ser Ser Thr Phe Arg Pro Thr Thr Lys Thr Phe
 115 120 125
 Arg Ile Ile Tyr Gly Ser Gly Arg Met Lys Gly Val Val Ala His Asp
 130 135 140
 Thr Val Arg Ile Gly Asn Leu Val Ser Thr Asp Gln Pro Phe Gly Leu
 145 150 155 160
 Ser Met Ala Glu Tyr Gly Leu Glu Ser Arg Arg Phe Asp Gly Ile Leu
 165 170 175
 Gly Leu Asn Tyr Pro Asn Leu Ser Cys Ser Gly Ala Ile Pro Ile Phe
 180 185 190
 Asp Lys Leu Lys Asn Gln Gly Ala Ile Ser Asp Pro Ile Phe Ala Phe
 195 200 205
 Tyr Leu Ser Lys Asp Lys Arg Glu Gly Ser Val Val Met Phe Gly Gly
 210 215 220
 Val Asp His Arg Tyr Tyr Lys Gly Glu Leu Asn Trp Val Pro Leu Ile
 225 230 235 240
 Arg Ala Gly Asp Trp Ile Val His Val Asp Arg Ile Thr Met Lys Arg
 245 250 255
 Glu Val Ile Ala Cys Ser Asp Gly Cys Ala Ala Leu Val Asp Thr Gly
 260 265 270
 Thr Ser Leu Ile Gln Gly Pro Gly Arg Val Ile Asp Asn Ile His Lys
 275 280 285
 Leu Ile Gly Ala Thr Pro Arg Gly Ser Lys His Tyr Val Ser Cys Ser
 290 295 300
 Val Val Asn Thr Leu Pro Ser Ile Ile Phe Thr Ile Asn Gly Ile Asn
 305 310 315 320
 Tyr Pro Val Pro Ala Pro Ala Tyr Ile Leu Lys Asp Ser Arg Gly Tyr
 325 330 335
 Cys Tyr Thr Ala Phe Lys Glu Gln Arg Val Arg Arg Ser Thr Glu Ser
 340 345 350
 Trp Leu Leu Gly Asp Val Phe Leu Arg Leu Tyr Phe Ser Val Phe Asp
 355 360 365
 Arg Gly Asn Asp Arg Ile Gly Leu Ala Arg Ala Val
 370 375 380

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031997-031998

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<210> 48
<211> 380
<212> PRT
<213> bovidae
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 115 120 125
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 130 135 140
 Thr Val Arg Ile Gly Asp Leu Val Ser Thr Asp Gln Pro Phe Cys Ile
 145 150 155 160
 Ser Leu Ala Glu Val Gly Phe Asp Gly Ile Pro Phe Asp Gly Val Leu
 165 170 175
 Gly Leu Asn Tyr Pro Asn Met Ser Phe Ser Gly Ala Ile Pro Ile Phe
 180 185 190
 Asp Asn Leu Lys Asn Glu Gly Ala Ile Ser Glu Pro Val Phe Ala Phe
 195 200 205
 Tyr Leu Ser Lys Asp Lys Arg Glu Gly Ser Val Val Met Phe Gly Gly
 210 215 220
 Val Asp His Arg Tyr Tyr Lys Gly Glu Leu Asn Trp Val Pro Leu Ile
 225 230 235 240
 Gln Ala Gly Gly Trp Thr Val His Val Asp Arg Ile Ser Met Lys Arg
 245 250 255
 Lys Ile Ile Ala Cys Ser Gly Gly Cys Glu Ala Leu Val Asp Thr Gly
 260 265 270
 Thr Ala Leu Ile Lys Gly Pro Arg Arg Leu Val Asn Asn Ile Gln Lys
 275 280 285
 Leu Ile Gly Thr Thr Pro Arg Gly Ser Lys His Tyr Val Ser Cys Ser
 290 295 300
 Val Val Asn Thr Leu Pro Ser Ile Ile Phe Thr Ile Asn Gly Ile Asn
 305 310 315 320
 Tyr Pro Val Pro Ala Arg Ala Tyr Ile Leu Lys Asp Ser Glu Ser Asn
 325 330 335
 Cys Tyr Thr Thr Phe Lys Glu Asn Thr Val Arg Thr Ser Arg Glu Thr
 340 345 350
 Trp Ile Leu Gly Asp Val Phe Pro Arg Leu Tyr Phe Ser Val Phe Asp
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 370 375 380

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 <212> DNA
 <213> bovidae

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 aatcttaactt ttacccctt gagaaacatc aaggataggc tctacgtggg taacatcacc 240
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 gtgacctccg tcttttgac cagcccaacc tgttctacac atgttatgtt cagacatttt 360
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 atgaaaggag ttgtgtgtca tgacacagtt cggattgggg accttgaag tactgaccag 480
 ccatttggtc taagtgtggg ggaacttggg ttgatggta taccctttga tggcgctcatg 540
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 aatcaagggt ccatttttga gcctgttttt gccttctact tgagcaaaga cgagcaggag 660
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 aagggttatg cttgtctcgg tggctgcaag gccgttggg acaccgggac atcactgatt 840
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 <211> 381
 <212> PRT
 <213> bovidae

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 20 25 30
 Gly Lys Asn Ile Leu Asn Asn Phe Leu Lys Glu His Ala Tyr Arg Leu
 35 40 45
 Ser Gln Ile Ser Ser Cys Gly Ser Asn Leu Thr Phe His Pro Leu Arg
 50 55 60
 Asn Ile Lys Asp Arg Leu Tyr Val Gly Asn Ile Thr Ile Gly Thr Pro
 65 70 75 80
 Pro Gln Glu Phe Gln Val Ile Phe Asp Thr Gly Ser Ser Asp Leu Trp
 85 90 95
 Val Thr Ser Val Phe Cys Thr Ser Pro Thr Cys Ser Thr His Val Met
 100 105 110

<210> 51
 <211> 1154
 <212> DNA
 <213> bovidae

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<210> 52
 <211> 380
 <212> PRT
 <213> bovidae

<400> 52
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 20 25 30
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 35 40 45
 Ser Gln Ile Ser Phe Arg Gly Ser Asn Leu Thr Ser His Pro Leu Arg
 50 55 60
 Asn Ile Lys Asp Leu Val Tyr Leu Ala Asn Ile Thr Ile Gly Thr Pro
 65 70 75 80
 Pro Gln Glu Phe Gln Val Phe Leu Asp Thr Gly Ser Ser Asp Leu Trp
 85 90 95
 Val Pro Ser Asp Phe Cys Thr Ser Pro Gly Cys Ser Lys His Val Arg
 100 105 110

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 <211> 1154
 <212> DNA
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 <212> PRT
 <213> bovidae

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 35 40 45
 Ser Gln Ile Ser Phe Arg Gly Ser Asn Leu Thr Thr Leu Pro Leu Arg
 50 55 60
 Asn Ile Trp Asp Ile Phe Tyr Ile Gly Thr Ile Thr Ile Gly Thr Pro
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 85 90 95
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 100 105 110

<210> 55
 <211> 1320
 <212> DNA
 <213> bovidae

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 <211> 380
 <212> PRT
 <213> bovidae

<400> 56
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 Ser Lys Ile Ser Phe Arg Gly Ser Asn Leu Thr Thr Leu Pro Leu Arg
 50 55 60
 Asn Ile Glu Asp Leu Met Tyr Val Gly Asn Ile Thr Ile Gly Thr Pro
 65 70 75 80
 Pro Gln Glu Phe Gln Val Val Phe Asp Thr Gly Ser Ser Asp Phe Trp
 85 90 95

Val Pro Ser Asp Phe Cys Thr Ser Pro Asp Cys Ile Thr His Val Arg
 100 105 110
 Phe Arg Gln His Gln Ser Ser Thr Phe Arg Pro Thr Asn Lys Thr Phe
 115 120 125
 Ser Ile Thr Tyr Gly Ser Gly Arg Met Arg Gly Val Val Val His Asp
 130 135 140
 Thr Val Arg Ile Gly Asp Leu Val Ser Thr Asp Gln Pro Phe Gly Leu
 145 150 155 160
 Ser Val Ser Glu Tyr Gly Phe Lys Asp Arg Ala Tyr Asp Gly Ile Leu
 165 170 175
 Gly Leu Asn Tyr Pro Asp Glu Ser Phe Ser Glu Ala Ile Pro Ile Phe
 180 185 190
 Asp Lys Leu Lys Asn Glu Gly Ala Ile Ser Glu Pro Ile Phe Ala Phe
 195 200 205
 Tyr Leu Ser Lys Lys Lys Arg Glu Gly Ser Val Val Met Phe Gly Gly
 210 215 220
 Val Asp His Arg Tyr Tyr Lys Gly Glu Leu Asn Trp Val Pro Leu Ile
 225 230 235 240
 Glu Glu Gly Asp Trp Ser Val Arg Met Asp Gly Ile Ser Met Lys Thr
 245 250 255
 Lys Val Val Ala Cys Ser Asp Gly Cys Glu Ala Val Val Asp Thr Gly
 260 265 270
 Thr Ser Leu Ile Lys Gly Pro Arg Lys Leu Val Asn Lys Ile Gln Lys
 275 280 285
 Leu Ile Gly Ala Thr Pro Arg Gly Ser Lys His Tyr Val Tyr Cys Ser
 290 295 300
 Ala Val Asn Ala Leu Pro Ser Ile Ile Phe Thr Ile Asn Gly Ile Asn
 305 310 315 320
 Tyr Pro Val Pro Ala Arg Ala Tyr Ile Leu Lys Asp Ser Arg Gly Arg
 325 330 335
 Cys Tyr Thr Ala Phe Lys Lys Gln Arg Phe Ser Ser Ser Thr Glu Thr
 340 345 350
 Trp Leu Leu Gly Asp Ala Phe Leu Arg Val Tyr Phe Ser Val Phe Asp
 355 360 365
 Arg Gly Asn Gly Arg Ile Gly Leu Ala Gln Ala Val
 370 375 380

09-07-2016

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gcggagacct caactgggtg ccggtgtcca aacggctgta ctggcagta tccatggaca 780
gcatctccat gaacggggaa gtcatgtctt gtgacgggtg ctgccaggcc atcattgata 840
caggaaacct gctgctgatt ggcctatctc acgttgtctt caacatccag atgatcatcg 900
gcgccaacca gtccctacgc ggcgagtacg tagttgactg cgatgcgcc aacaccctgc 960
ccgacatcgt cttcaccatc aacggcatcg actaccgggt gccaccaggt gcctacatcc 1020
aggagggtcc tcagggcacc tgctacacgc gctttgacga gagcggagac agcttggttg 1080
tctcagactc ctggatcctg ggcgatgtct tcctgaggtt gtaatttcacc gtcttcgacc 1140
gagagaacaa caggattggc ctggccctgg cagtgtaaac actggggcca gctccaggaa 1200
gcaacctgac ccaccccaaa ccgcgcgcgc cgtgtgcgca cacacacaca cacacacccc 1260
gcagtcaggc cattctgcc caggggccgg cttgaactgt gtcttcggct ctgccaatcc 1320
cttctcccag tggagaataa aagacctcat ctccacgggt 1360

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<210> 16

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer

<400> 16

cccaagctta tgaagtggct tgtgtcct

29

<210> 17

<211> 69

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer

<400> 17

gggaagctta ctgtcatcg tcgtccttgt agtcggtacc cacctgtgcc aggccaatcc 60
tgtcatttc 69

<210> 18

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer

<400> 18

cctcttttgc cttctacttg a 21

<210> 19

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer

<400> 19

gcgctcgagt tacactgccc gtgccaggc 29

<210> 20

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer

<400> 20

tgggtaacat caccattgga a 21

<210> 21

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer

<400> 21

tttctgagcc tgtttttgccc 20

<210> 22

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer

00073154 034099

<400> 22
tgggtaacat caccattgga ac

22

<210> 23
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer

<400> 23
caaacatcac cacactgccc tcc

23

<210> 24
<211> 380
<212> PRT
<213> bovidae

<400> 24
Met Lys Trp Leu Val Leu Leu Gly Leu Val Ala Phe Ser Glu Cys Ile
1 5 10 15

Val Lys Ile Pro Leu Arg Arg Leu Lys Thr Met Arg Asn Val Val Ser
20 25 30

Gly Lys Asn Met Leu Asn Asn Phe Leu Lys Glu His Ala Tyr Ser Leu
35 40 45

Ser Gln Ile Ser Phe Arg Gly Ser Asn Leu Thr Thr His Pro Leu Arg
50 55 60

Asn Ile Lys Asp Leu Val Tyr Met Gly Asn Ile Thr Ile Gly Thr Pro
65 70 75 80

Pro Gln Glu Phe Gln Val Val Phe Asp Thr Ala Ser Ser Asp Leu Trp
85 90 95

Val Pro Ser Asp Phe Cys Thr Ser Pro Ala Cys Ser Thr His Val Arg
100 105 110

Phe Arg His Leu Gln Ser Ser Thr Phe Arg Leu Thr Asn Lys Thr Phe
115 120 125

Arg Ile Thr Tyr Gly Ser Gly Arg Met Lys Gly Val Val Val His Asp
130 135 140

Thr Val Arg Ile Gly Asn Leu Val Ser Thr Asp Gln Pro Phe Gly Leu			
145	150	155	160
Ser Ile Glu Glu Tyr Gly Phe Glu Gly Arg Ile Tyr Asp Gly Val Leu			
	165	170	175
Gly Leu Asn Tyr Pro Asn Ile Ser Phe Ser Gly Ala Ile Pro Ile Phe			
	180	185	190
Asp Lys Leu Lys Asn Gln Arg Ala Ile Ser Glu Pro Val Phe Ala Phe			
	195	200	205
Tyr Leu Ser Lys Asp Glu Arg Glu Gly Ser Val Val Met Phe Gly Gly			
	210	215	220
Val Asp His Arg Tyr Tyr Glu Gly Glu Leu Asn Trp Val Pro Leu Ile			
	225	230	235
Gln Ala Gly Asp Trp Ser Val His Met Asp Arg Ile Ser Ile Glu Arg			
	245	250	255
Lys Ile Ile Ala Cys Ser Asp Gly Cys Lys Ala Leu Val Asp Thr Gly			
	260	265	270
Thr Ser Asp Ile Val Gly Pro Arg Arg Leu Val Asn Asn Ile His Arg			
	275	280	285
Leu Ile Gly Ala Ile Pro Arg Gly Ser Glu His Tyr Val Pro Cys Ser			
	290	295	300
Glu Val Asn Thr Leu Pro Ser Ile Val Phe Thr Ile Asn Gly Ile Asn			
	305	310	315
Tyr Pro Val Pro Gly Arg Ala Tyr Ile Leu Lys Asp Asp Arg Gly Arg			
	325	330	335
Cys Tyr Thr Thr Phe Gln Glu Asn Arg Val Ser Ser Ser Thr Glu Thr			
	340	345	350
Trp Tyr Leu Gly Asp Val Phe Leu Arg Leu Tyr Phe Ser Val Phe Asp			
	355	360	365
Arg Gly Asn Asp Arg Ile Gly Leu Ala Arg Ala Val			
	370	375	380

<210> 25

<211> 376

<212> PRT
<213> bovidae

<400> 25

Met Lys Trp Leu Val Leu Leu Gly Leu Val Ala Leu Ser Glu Cys Ile
1 5 10 15

Val Ile Leu Pro Leu Lys Lys Met Lys Thr Leu Arg Glu Thr Leu Arg
20 25 30

Glu Lys Asn Leu Leu Asn Asn Phe Leu Glu Glu Gln Ala Tyr Arg Leu
35 40 45

Ser Lys Asn Asp Ser Lys Ile Thr Ile His Pro Leu Arg Asn Tyr Leu
50 55 60

Asp Thr Ala Tyr Val Gly Asn Ile Thr Ile Gly Thr Pro Pro Gln Glu
65 70 75 80

Phe Arg Val Val Phe Asp Thr Gly Ser Ala Asn Leu Trp Val Pro Cys
85 90 95

Ile Thr Cys Thr Ser Pro Ala Cys Tyr Thr His Lys Thr Phe Asn Pro
100 105 110

Gln Asn Ser Ser Ser Phe Arg Glu Val Gly Ser Pro Ile Thr Ile Phe
115 120 125

Tyr Gly Ser Gly Ile Ile Gln Gly Phe Leu Gly Ser Asp Thr Val Arg
130 135 140

Ile Gly Asn Leu Val Ser Pro Glu Gln Ser Phe Gly Leu Ser Leu Glu
145 150 155 160

Glu Tyr Gly Phe Asp Ser Leu Pro Phe Asp Gly Ile Leu Gly Leu Ala
165 170 175

Phe Pro Ala Met Gly Ile Glu Asp Thr Ile Pro Ile Phe Asp Asn Leu
180 185 190

Trp Ser His Gly Ala Phe Ser Glu Pro Val Phe Ala Phe Tyr Leu Asn
195 200 205

Thr Asn Lys Pro Glu Gly Ser Val Val Met Phe Gly Gly Val Asp His
210 215 220

Arg Tyr Tyr Lys Gly Glu Leu Asn Trp Ile Pro Val Ser Gln Thr Ser
225 230 235 240

00273161.031099

His Trp Gln Ile Ser Met Asn Asn Ile Ser Met Asn Gly Thr Val Thr
245 250 255

Ala Cys Ser Cys Gly Cys Glu Ala Leu Leu Asp Thr Gly Thr Ser Met
260 265 270

Ile Tyr Gly Pro Thr Lys Leu Val Thr Asn Ile His Lys Leu Met Asn
275 280 285

Ala Arg Leu Glu Asn Ser Glu Tyr Val Val Ser Cys Asp Ala Val Lys
290 295 300

Thr Leu Pro Pro Val Ile Phe Asn Ile Asn Gly Ile Asp Tyr Pro Leu
305 310 315 320

Arg Pro Gln Ala Tyr Ile Ile Lys Ile Gln Asn Ser Cys Arg Ser Val
325 330 335

Phe Gln Gly Gly Thr Glu Asn Ser Ser Leu Asn Thr Trp Ile Leu Gly
340 345 350

Asp Ile Phe Leu Arg Gln Tyr Phe Ser Val Phe Asp Arg Lys Asn Arg
355 360 365

Arg Ile Gly Leu Ala Pro Ala Val
370 375

<210> 26

<211> 381

<212> PRT

<213> bovidae

<400> 26

Met Asp Asp Leu Val Leu Leu Gly Leu Val Ala Phe Ser Glu Cys Ile
1 5 10 15

Val Lys Ile Pro Leu Arg Arg Val Lys Thr Met Arg Asn Thr Val Ser
20 25 30

Gly Lys Asn Ile Leu Asn Asn Ile Leu Lys Glu His Val Tyr Arg Leu
35 40 45

Ser Gln Ile Ser Phe Arg Gly Ser Asn Leu Thr Thr His Pro Leu Arg
50 55 60

Asn Ile Lys Asp Leu Ile Tyr Val Gly Asn Ile Thr Ile Gly Thr Pro

[illegible]

65	70	75	80
Pro Gln Glu Phe Gln Val Val Phe Asp Thr Gly Ser Ser Asp Phe Trp	85	90	95
Val Pro Ser Asp Phe Cys Thr Ser Arg Ala Cys Ser Thr His Val Arg	100	105	110
Phe Arg His Leu Gln Ser Ser Thr Phe Arg Leu Thr Asn Lys Thr Phe	115	120	125
Arg Ile Thr Tyr Gly Ser Gly Arg Met Lys Gly Val Val Ala His Asp	130	135	140
Thr Val Arg Ile Gly Asp Leu Val Ser Thr Asp Gln Pro Phe Gly Leu	145	150	155
Ser Val Glu Glu Tyr Gly Phe Glu Gly Arg Ala Tyr Tyr Asp Gly Val	165	170	175
Leu Gly Leu Asn Tyr Pro Asn Ile Ser Phe Ser Gly Ala Ile Pro Ile	180	185	190
Phe Asp Asn Leu Lys Asn Gln Gly Ala Ile Ser Glu Pro Val Phe Ala	195	200	205
Ile Leu Leu Ser Lys Asp Glu Gln Glu Gly Ser Val Val Met Phe Gly	210	215	220
Gly Val Asp His Arg Tyr Tyr Glu Gly Glu Leu Asn Trp Val Pro Leu	225	230	235
Ile Glu Ala Gly Asp Trp Ile Ile His Met Asp Arg Ile Ser Met Lys	245	250	255
Arg Lys Ile Ile Ala Cys Ser Gly Ser Cys Glu Ala Ile Val Asp Thr	260	265	270
Gly Thr Ser Ala Ile Glu Gly Pro Arg Lys Leu Val Asn Lys Ile His	275	280	285
Lys Leu Ile Gly Ala Arg Pro Arg His Ser Lys Tyr Tyr Ile Ser Cys	290	295	300
Ser Ala Val Asn Thr Leu Pro Ser Ile Ile Phe Thr Ile Asn Gly Ile	305	310	315
Asn Tyr Pro Cys Pro Gly Arg Ala Tyr Val Leu Lys Asp Ser Arg Gly			

325

330

335

Arg Cys Tyr Ser Met Phe Gln Glu Asn Lys Val Ser Ser Ser Thr Glu
340 345 350

Thr Trp Ile Leu Gly Asp Val Phe Leu Arg Val Tyr Phe Ser Val Phe
355 360 365

Asp Arg Gly Asn Asp Arg Ile Gly Leu Ala Arg Ala Val
370 375 380

<210> 27

<211> 380

<212> PRT

<213> bovidae

<400> 27

Met Lys Trp Leu Val Leu Leu Gly Leu Val Ala Phe Ser Glu Cys Ile
1 5 10 15

Val Lys Ile Pro Leu Arg Arg Val Lys Thr Met Thr Lys Thr Leu Ser
20 25 30

Gly Lys Asn Met Leu Asn Asn Phe Val Lys Glu His Ala Tyr Arg Leu
35 40 45

Ser Gln Ile Ser Phe Arg Gly Ser Asn Leu Thr Ile His Pro Leu Arg
50 55 60

Asn Ile Arg Asp Phe Phe Tyr Val Gly Asn Ile Thr Ile Gly Thr Pro
65 70 75 80

Pro Gln Glu Phe Gln Val Ile Phe Asp Thr Gly Ser Ser Glu Leu Trp
85 90 95

Val Pro Ser Ile Phe Cys Asn Ser Ser Thr Cys Ser Lys His Asp Arg
100 105 110

Phe Arg His Leu Glu Ser Ser Thr Phe Arg Leu Ser Arg Arg Thr Phe
115 120 125

Ser Ile Thr Tyr Gly Ser Gly Arg Ile Glu Ala Leu Val Val His Asp
130 135 140

Thr Val Arg Ile Gly Asp Leu Val Ser Thr Asp Gln Gln Phe Gly Leu
145 150 155 160

[illegible]

Cys	Leu	Glu	Glu	Ser	Gly	Phe	Glu	Gly	Met	Arg	Phe	Asp	Gly	Val	Leu	165	170	175	
Gly	Leu	Ser	Tyr	Thr	Asn	Ile	Ser	Pro	Ser	Gly	Ala	Ile	Pro	Ile	Phe	180	185	190	
Tyr	Lys	Leu	Lys	Asn	Glu	Gly	Ala	Ile	Ser	Glu	Pro	Val	Phe	Ala	Phe	195	200	205	
Tyr	Leu	Ser	Lys	Asp	Glu	Arg	Glu	Gly	Ser	Val	Val	Met	Phe	Gly	Gly	210	215	220	
Ala	Asp	His	Arg	Tyr	Tyr	Lys	Gly	Glu	Leu	Asn	Trp	Ile	Pro	Leu	Met	225	230	235	240
Lys	Ala	Gly	Asp	Trp	Ser	Val	His	Met	Asp	Arg	Ile	Ser	Met	Lys	Arg	245	250	255	
Lys	Val	Ile	Ala	Cys	Ser	Gly	Gly	Cys	Lys	Ala	Leu	Val	Asp	Thr	Gly	260	265	270	
Ser	Ser	Asp	Ile	Val	Gly	Pro	Ser	Thr	Leu	Val	Asn	Asn	Ile	Trp	Lys	275	280	285	
Leu	Ile	Gly	Ala	Thr	Pro	Gln	Gly	Ser	Glu	His	Tyr	Val	Ser	Cys	Ser	290	295	300	
Ala	Val	Asn	Ser	Leu	Pro	Ser	Ile	Ile	Phe	Thr	Ile	Lys	Ser	Asn	Asn	305	310	315	320
Tyr	Arg	Val	Pro	Gly	Gln	Ala	Tyr	Ile	Leu	Lys	Asp	Ser	Arg	Gly	Arg	325	330	335	
Cys	Phe	Thr	Ala	Phe	Lys	Gly	His	Gln	Gln	Ser	Ser	Ser	Thr	Glu	Met	340	345	350	
Trp	Ile	Leu	Gly	Asp	Val	Phe	Leu	Arg	Leu	Tyr	Phe	Ser	Val	Phe	Asp	355	360	365	
Arg	Arg	Lys	Asp	Arg	Ile	Gly	Leu	Ala	Thr	Lys	Val					370	375	380	

<210> 28

<211> 377

<212> PRT

<213> bovidae

<400> 28

Met	Lys	Trp	Leu	Val	Leu	Leu	Gly	Leu	Leu	Thr	Ser	Ser	Glu	Cys	Ile
1				5					10					15	
Val	Ile	Leu	Pro	Leu	Thr	Lys	Val	Lys	Thr	Met	Arg	Lys	Thr	Leu	Ser
		20						25					30		
Glu	Lys	Asn	Met	Leu	Asn	Asn	Phe	Leu	Lys	Glu	Gln	Ala	Tyr	Arg	Leu
	35						40					45			
Ser	Gln	Ile	Ser	Ser	Arg	Gly	Ser	Asn	Ile	Thr	Ile	His	Pro	Leu	Arg
	50					55					60				
Asn	Ile	Met	Asp	Met	Val	Tyr	Val	Gly	Lys	Ile	Thr	Ile	Gly	Thr	Pro
65					70					75					80
Pro	Gln	Glu	Phe	Gln	Val	Val	Phe	Asp	Thr	Gly	Ser	Ser	Glu	Leu	Trp
			85						90					95	
Val	Pro	Ser	Val	Phe	Cys	Pro	Ser	Ser	Ala	Cys	Ser	Thr	His	Ile	Arg
			100					105					110		
Phe	Arg	His	Leu	Glu	Ser	Ser	Thr	Ser	Gly	Leu	Thr	Gln	Lys	Thr	Phe
	115						120					125			
Ser	Ile	Thr	Tyr	Gly	Ser	Gly	Ser	Thr	Lys	Gly	Phe	Leu	Ala	Tyr	Asp
	130					135					140				
Thr	Val	Arg	Ile	Gly	Asp	Leu	Leu	Ser	Thr	Asp	Gln	Glu	Phe	Gly	Leu
145					150					155					160
Ser	Met	Glu	Glu	His	Gly	Phe	Glu	Asp	Leu	Pro	Phe	Asp	Gly	Val	Leu
				165					170					175	
Gly	Leu	Asn	Tyr	Pro	Asp	Met	Ser	Phe	Ile	Thr	Thr	Ile	Pro	Ile	Phe
			180						185				190		
Asp	Asn	Leu	Lys	Asn	Gln	Gly	Ala	Phe	Ser	Glu	Pro	Val	Phe	Ala	Phe
		195					200						205		
Tyr	Leu	Gly	Lys	Val	Lys	Gly	Ser	Val	Val	Met	Phe	Gly	Gly	Val	Asp
	210					215					220				
His	Thr	Tyr	Tyr	Lys	Gly	Glu	Leu	Asn	Trp	Val	Pro	Leu	Ile	Gln	Ala
225					230					235					240
Gly	Glu	Trp	Ser	Leu	His	Met	Asp	Arg	Ile	Ser	Met	Lys	Arg	Lys	Val
				245					250					255	

Ile Ala Cys Ser Gly Gly Cys Glu Ala Phe Tyr Asp Thr Gly Thr Ser
260 265 270

Leu Ile Leu Gly Pro Arg Arg Leu Val Asn Asn Ile Gln Lys Leu Ile
275 280 285

Gly Ala Thr Pro Gln Gly Ser Glu His Tyr Ile Ser Cys Phe Ala Val
290 295 300

Ile Ser Leu Pro Ser Ile Ile Phe Thr Ile Asn Gly Ile Asn Ile Pro
305 310 315 320

Val Pro Ala Arg Ala Tyr Ile His Lys Asp Ser Arg Gly His Cys Tyr
325 330 335

Pro Thr Phe Lys Glu Asn Thr Val Ser Thr Ser Thr Glu Thr Trp Ile
340 345 350

Leu Gly Asp Val Phe Leu Arg Leu Tyr Phe Ser Val Phe Asp Arg Gly
355 360 365

Asn Asp Arg Ile Gly Leu Ala Gln Val
370 375

<210> 29

<211> 379

<212> PRT

<213> bovidae

<400> 29

Met Lys Trp Leu Val Leu Leu Gly Leu Val Ala Phe Ser Glu Cys Ile
1 5 10 15

Val Lys Ile Pro Leu Arg Arg Val Lys Thr Met Arg Asn Ala Ile Ser
20 25 30

Gly Lys Asn Thr Leu Asn Asn Ile Leu Lys Glu His Ala Tyr Arg Leu
35 40 45

Pro Gln Ile Ser Phe Arg Gly Ser Asn Leu Thr His Pro Leu Arg Asn
50 55 60

Ile Arg Asp Leu Phe Tyr Val Gly Asn Ile Thr Ile Gly Thr Pro Pro
65 70 75 80

Gln Glu Phe Gln Val Ile Phe Asp Thr Gly Ser Ser Asp Leu Trp Val

Ala Ser Ile Phe Cys Asn Ser Ser Ser Cys Ala Ala His Val Arg Phe
100 105 110

Arg His His Gln Ser Ser Thr Phe Arg Pro Thr Asn Lys Thr Phe Arg
115 120 125

Ile Thr Tyr Gly Ser Gly Arg Met Lys Gly Val Val Val His Asp Thr
130 135 140

Val Arg Ile Gly Asp Leu Val Ser Thr Asp Gln Pro Phe Gly Leu Cys
145 150 155 160

Leu Lys Asp Ser Gly Phe Lys Gly Ile Pro Phe Asp Gly Ile Leu Gly
165 170 175

Leu Ser Tyr Pro Asn Lys Thr Phe Ser Gly Ala Phe Pro Ile Phe Asp
180 185 190

Lys Leu Lys Asn Glu Gly Ala Ile Ser Glu Pro Val Phe Ala Phe Tyr
195 200 205

Leu Ser Lys Asp Lys Gln Glu Gly Ser Val Val Met Phe Gly Gly Val
210 215 220

Asp His Arg Tyr Tyr Lys Gly Glu Leu Asn Trp Val Pro Leu Ile Gln
225 230 235 240

Val Gly Asp Trp Phe Val His Met Asp Arg Thr Thr Met Lys Arg Lys
245 250 255

Val Ile Ala Cys Ser Asp Gly Cys Lys Ala Leu Val Asp Thr Gly Thr
260 265 270

Ser Asp Ile Val Gly Pro Ser Thr Leu Val Asn Asn Ile Trp Lys Leu
275 280 285

Ile Arg Ala Arg Pro Leu Gly Pro Gln Tyr Phe Val Ser Cys Ser Ala
290 295 300

Val Asn Thr Leu Pro Ser Ile Ile Phe Thr Ile Asn Gly Ile Asn Tyr
305 310 315 320

Arg Leu Pro Ala Arg Ala Tyr Ile His Lys Asp Ser Arg Gly Arg Cys
325 330 335

Tyr Thr Ala Phe Lys Glu His Arg Phe Ser Ser Pro Ile Glu Thr Trp

340

345

350

Leu Leu Gly Asp Val Phe Leu Arg Arg Tyr Phe Ser Val Phe Asp Arg
355 360 365

Gly Asn Asp Arg Ile Gly Leu Ala Arg Ala Val
370 375

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<210> 30
<211> 341
<212> PRT
<213> bovidae
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<400> 30  
Met Lys Trp Leu Val Leu Leu Gly Leu Val Ala Phe Ser Glu Cys Ile  
      1              5              10             15
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Val Lys Ile Pro Leu Arg Arg Val Lys Thr Met Arg Lys Thr Leu Ser
20 25 30

Gly Lys Asn Met Leu Asn Asn Phe Leu Lys Glu Asp Pro Tyr Arg Leu
35 40 45

Ser His Ile Ser Phe Arg Gly Ser Asn Leu Thr Ile His Pro Leu Arg
50 55 60

Asn Ile Arg Asp Ile Phe Tyr Val Gly Asn Ile Thr Ile Gly Thr Pro
65 70 75 80

Pro Gln Glu Phe Gln Val Ile Phe Asp Thr Gly Ser Ser Asp Leu Trp
85 90 95

Val Pro Ser Ile Asp Cys Asn Ser Thr Ser Cys Ala Thr His Val Arg
100 105 110

Phe Arg His Leu Gln Ser Ser Thr Phe Arg Pro Thr Asn Lys Thr Phe
115 120 125

Arg Ile Ile Tyr Gly Ser Gly Arg Met Asn Gly Val Ile Ala Tyr Asp
130 135 140

Thr Val Arg Ile Gly Asp Leu Val Ser Thr Asp Gln Pro Phe Gly Leu
145 150 155 160

Ser Val Glu Glu Tyr Gly Phe Ala His Lys Arg Phe Asp Gly Ile Leu
165 170 175

Gly Leu Asn Tyr Trp Asn Leu Ser Trp Ser Lys Ala Met Pro Ile Phe
180 185 190

Asp Lys Leu Lys Asn Glu Gly Ala Ile Ser Glu Pro Val Phe Ala Phe
195 200 205

Tyr Leu Ser Asn Ile Thr Met Asn Arg Glu Val Ile Ala Cys Ser Glu
210 215 220

Gly Cys Ala Ala Leu Val Asp Thr Gly Ser Ser Asn Ile Gln Gly Pro
225 230 235 240

Gly Arg Leu Ile Asp Asn Ile Gln Arg Ile Ile Gly Ala Thr Pro Arg
245 250 255

Gly Ser Lys Tyr Tyr Val Ser Cys Ser Ala Val Asn Ile Leu Pro Ser
260 265 270

Ile Ile Phe Thr Ile Asn Gly Val Asn Tyr Pro Val Pro Pro Arg Ala
275 280 285

Tyr Ile Leu Lys Asp Ser Arg Gly His Cys Tyr Thr Thr Phe Lys Glu
290 295 300

Lys Arg Val Arg Arg Ser Thr Glu Ser Trp Val Leu Gly Glu Val Phe
305 310 315 320

Leu Arg Leu Tyr Phe Ser Val Phe Asp Arg Gly Asn Asp Arg Ile Gly
325 330 335

Leu Ala Arg Arg Val
340

<210> 31

<211> 387

<212> PRT

<213> bovidae

<400> 31

Met Lys Tyr Trp Leu Val Leu Leu Gly Leu Val Ala Leu Ser Glu Cys Ile
1 5 10 15

Val Lys Ile Pro Leu Thr Lys Met Lys Thr Met Gln Glu Ala Ile Arg
20 25 30

Glu Lys Gln Leu Leu Glu Asp Phe Leu Asp Glu Gln Pro His Ser Leu
35 40 45

Ser Gln His Ser Asp Pro Asp Lys Lys Phe Ser Ser His Gln Leu Lys
50 55 60

Asn Phe Gln Asn Ala Val Tyr Phe Gly Thr Ile Thr Ile Gly Thr Pro
65 70 75 80

Pro Gln Glu Phe Gln Val Asn Phe Asp Thr Gly Ser Ser Asp Leu Trp
85 90 95

Val Pro Ser Val Asp Cys Gln Ser Pro Ser Cys Ser Lys His Lys Arg
100 105 110

Phe Asp Pro Gln Lys Ser Thr Thr Phe Gln Pro Leu Asn Gln Lys Ile
115 120 125

Glu Leu Val Tyr Gly Ser Gly Thr Met Lys Gly Val Leu Gly Ser Asp
130 135 140

Thr Ile Gln Ile Gly Asn Leu Val Ile Val Asn Gln Ile Phe Gly Leu
145 150 155 160

Ser Gln Asn Gln Ser Ser Gly Val Leu Glu Gln Val Pro Tyr Asp Gly
165 170 175

Ile Leu Gly Leu Ala Tyr Pro Ser Leu Ala Ile Gln Gly Thr Thr Pro
180 185 190

Val Phe Asp Asn Leu Lys Asn Arg Glu Val Ile Ser Glu Pro Val Phe
195 200 205

Ala Phe Tyr Leu Ser Ser Arg Pro Glu Asn Ile Ser Thr Val Met Phe
210 215 220

Gly Gly Val Asp His Thr Tyr His Lys Gly Lys Leu Gln Trp Ile Pro
225 230 235 240

Val Thr Gln Ala Arg Phe Trp Gln Val Ala Met Ser Ser Met Thr Met
245 250 255

Asn Gly Asn Val Val Gly Cys Ser Gln Gly Cys Gln Ala Val Val Asp
260 265 270

Thr Gly Thr Ser Leu Leu Val Gly Pro Thr His Leu Val Thr Asp Ile
275 280 285

Leu Lys Leu Ile Asn Pro Asn Pro Ile Leu Asn Asp Glu Gln Met Leu
290 295 300

Ser Cys Asp Ala Ile Asn Ser Leu Pro Thr Leu Leu Leu Thr Ile Asn
305 310 315 320

Gly Ile Val Tyr Pro Val Pro Pro Asp Tyr Tyr Ile Gln Arg Phe Ser
325 330 335

Glu Arg Ile Cys Phe Ile Ser Phe Gln Gly Gly Thr Glu Ile Leu Lys
340 345 350

Asn Leu Gly Thr Ser Glu Thr Trp Ile Leu Gly Asp Val Phe Leu Arg
355 360 365

Leu Tyr Phe Ser Val Tyr Asp Arg Gly Asn Asn Arg Ile Gly Leu Ala
370 375 380

Pro Ala Ala
385

<210> 32

<211> 379

<212> PRT

<213> bovidae

<400> 32

Met Lys Trp Ile Val Leu Leu Gly Leu Val Ala Phe Ser Glu Cys Ile
1 5 10 15

Val Lys Ile Pro Leu Arg Gln Val Lys Thr Met Arg Lys Thr Leu Ser
20 25 30

Gly Lys Asn Met Leu Lys Asn Phe Leu Lys Glu His Pro Tyr Arg Leu
35 40 45

Ser Gln Ile Ser Phe Arg Gly Ser Asn Leu Thr Ile His Pro Leu Arg
50 55 60

Asn Ile Met Asn Leu Val Tyr Val Gly Asn Ile Thr Ile Gly Thr Pro
65 70 75 80

Pro Gln Glu Phe Gln Val Val Phe Asp Thr Gly Ser Ser Asp Leu Trp
85 90 95

Val Pro Ser Phe Cys Thr Met Pro Ala Cys Ser Ala Pro Val Trp Phe
100 105 110

Arg Gln Leu Gln Ser Ser Thr Phe Gln Pro Thr Asn Lys Thr Phe Thr

<210> 33
 <211> 380
 <212> PRT
 <213> bovidae

<400> 33

Met Lys Trp Leu Gly Leu Leu Gly Leu Val Ala Leu Ser Glu Cys Met
 1 5 10 15

Val Ile Ile Pro Leu Arg Gln Met Lys Thr Met Arg Glu Thr Leu Arg
 20 25 30

Glu Arg His Leu Leu Thr Asn Phe Ser Glu Glu His Pro Tyr Asn Leu
 35 40 45

Ser Gln Lys Ala Ala Asn Asp Gln Asn Ile Ile Tyr His His Pro Leu
 50 55 60

Arg Ser Tyr Lys Asp Phe Ser Tyr Ile Gly Asn Ile Asn Ile Gly Thr
 65 70 75 80

Pro Pro Gln Glu Phe Gln Val Leu Phe Asp Thr Gly Ser Ser Ser Leu
 85 90 95

Trp Val Pro Ser Ile Tyr Cys Gln Ser Ser Ser Cys Tyr Lys His Asn
 100 105 110

Ser Phe Val Pro Cys Asn Ser Ser Thr Phe Lys Ala Thr Asn Lys Ile
 115 120 125

Phe Asn Thr Asn Tyr Thr Ala Thr Ser Ile Lys Gly Tyr Leu Val Tyr
 130 135 140

Asp Thr Val Arg Ile Gly Asn Leu Val Ser Val Ala Gln Pro Phe Gly
 145 150 155 160

Leu Ser Leu Lys Glu Phe Gly Phe Asp Asp Val Pro Phe Asp Gly Ile
 165 170 175

Leu Gly Leu Gly Tyr Pro Arg Arg Thr Ile Thr Gly Ala Asn Pro Ile
 180 185 190

Phe Asp Asn Leu Trp Lys Gln Gly Val Ile Ser Glu Pro Val Phe Ala
 195 200 205

00273154.031096

Ser	Asp	Asp	Ser	Ala	Ser	Asp	Pro	Lys	Leu	Ser	Thr	His	Pro	Leu	Arg
50						55					60				
Asn	Ala	Leu	Asp	Met	Ala	Tyr	Val	Gly	Asn	Ile	Thr	Ile	Gly	Thr	Pro
65					70					75					80
Pro	Lys	Glu	Phe	Arg	Val	Val	Phe	Asp	Thr	Gly	Ser	Ser	Asp	Leu	Trp
				85					90					95	
Val	Pro	Ser	Ile	Lys	Cys	Ile	Ser	Pro	Ala	Cys	His	Thr	His	Ile	Thr
			100					105					110		
Phe	Asp	His	His	Lys	Ser	Ser	Thr	Phe	Arg	Leu	Thr	Arg	Arg	Pro	Phe
	115						120					125			
His	Ile	Leu	Tyr	Gly	Ser	Gly	Met	Met	Asn	Gly	Val	Leu	Ala	Tyr	Asp
	130					135					140				
Thr	Val	Arg	Ile	Gly	Lys	Leu	Val	Ser	Thr	Asp	Gln	Pro	Phe	Gly	Leu
145					150					155					160
Ser	Leu	Gln	Gln	Phe	Gly	Phe	Asp	Asn	Ala	Pro	Phe	Asp	Gly	Val	Leu
				165					170					175	
Gly	Leu	Ser	Tyr	Pro	Ser	Leu	Ala	Val	Pro	Gly	Thr	Ile	Pro	Ile	Phe
			180					185					190		
Asp	Lys	Leu	Lys	Gln	Gln	Gly	Ala	Ile	Ser	Glu	Pro	Ile	Phe	Ala	Phe
	195						200					205			
Tyr	Leu	Ser	Thr	Arg	Lys	Glu	Asn	Gly	Ser	Val	Leu	Met	Leu	Gly	Gly
	210					215					220				
Val	Asp	His	Ser	Tyr	His	Lys	Gly	Lys	Leu	Asn	Trp	Ile	Pro	Val	Ser
225					230					235					240
Gln	Thr	Lys	Ser	Trp	Leu	Ile	Thr	Val	Asp	Arg	Ile	Ser	Met	Asn	Gly
				245					250					255	
Arg	Val	Ile	Gly	Cys	Glu	His	Gly	Cys	Glu	Ala	Leu	Val	Asp	Thr	Gly
		260						265					270		
Thr	Ser	Leu	Ile	His	Gly	Pro	Ala	Arg	Pro	Val	Thr	Asn	Ile	Gln	Lys
	275						280					285			
Phe	Ile	His	Ala	Met	Pro	Tyr	Gly	Ser	Glu	Tyr	Met	Val	Leu	Cys	Pro
290						295					300				

Val Ile Ser Ile Leu Pro Pro Val Ile Phe Thr Ile Asn Gly Ile Asp
305 310 315 320

Tyr Ser Val Pro Arg Glu Ala Tyr Ile Gln Lys Ile Ser Asn Ser Leu
325 330 335

Cys Leu Ser Thr Phe His Gly Asp Asp Thr Asp Gln Trp Ile Leu Gly
340 345 350

Asp Val Phe Leu Arg Leu Tyr Phe Ser Val Tyr Asp Arg Gly Asn Asn
355 360 365

Arg Ile Gly Leu Ala Pro Ala Val
370 375

<210> 35

<211> 375

<212> PRT

<213> bovidae

<400> 35

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Val Ile Leu Pro Leu Arg Lys Met Lys Thr Leu Arg Glu Thr Leu Arg
20 25 30

Glu Lys Asn Leu Leu Asn Asn Phe Leu Glu Glu Arg Ala Tyr Arg Leu
35 40 45

Ser Lys Lys Asp Ser Lys Ile Thr Ile His Pro Leu Lys Asn Tyr Leu
50 55 60

Asp Met Ala Tyr Val Gly Asn Ile Thr Ile Gly Thr Pro Pro Gln Glu
65 70 75 80

Phe Arg Val Val Phe Asp Thr Gly Ser Ala Asp Leu Trp Val Pro Ser
85 90 95

Ile Ser Cys Val Ser Pro Ala Cys Tyr Thr His Lys Thr Phe Asn Leu
100 105 110

His Asn Ser Ser Ser Phe Gly Gln Thr His Gln Pro Ile Ser Ile Ser
115 120 125

Tyr Gly Pro Gly Ile Ile Gln Gly Phe Leu Gly Ser Asp Thr Val Arg

130

135

140

Ile Gly Asn Leu Val Ser Leu Lys Gln Ser Phe Gly Leu Ser Gln Glu
145 150 155 160

Glu Tyr Gly Phe Asp Gly Ala Pro Phe Asp Gly Val Leu Gly Leu Ala
165 170 175

Tyr Pro Ser Ile Ser Ile Lys Gly Ile Ile Pro Ile Phe Asp Asn Leu
180 185 190

Trp Ser Gln Gly Ala Phe Ser Glu Pro Val Phe Ala Phe Tyr Leu Asn
195 200 205

Thr Cys Gln Pro Glu Gly Ser Val Val Met Phe Gly Gly Val Asp His
210 215 220

Arg Tyr Tyr Lys Gly Glu Leu Asn Trp Ile Pro Val Ser Gln Thr Arg
225 230 235 240

Tyr Trp Gln Ile Ser Met Asn Arg Ile Ser Met Asn Gly Asn Val Thr
245 250 255

Ala Cys Ser Arg Gly Cys Gln Ala Leu Leu Asp Thr Gly Thr Ser Met
260 265 270

Ile His Gly Pro Thr Arg Leu Ile Thr Asn Ile His Lys Leu Met Asn
275 280 285

Ala Arg His Gln Gly Ser Glu Tyr Val Val Ser Cys Asp Ala Val Lys
290 295 300

Thr Leu Pro Pro Val Ile Phe Asn Ile Asn Gly Ile Asp Tyr Pro Leu
305 310 315 320

Pro Pro Gln Ala Tyr Ile Thr Lys Ala Gln Asn Phe Cys Leu Ser Ile
325 330 335

Phe His Gly Gly Thr Glu Thr Ser Ser Pro Glu Thr Trp Ile Leu Gly
340 345 350

Gly Val Phe Leu Arg Gln Tyr Phe Ser Val Phe Asp Arg Arg Asn Asp
355 360 365

Ser Ile Gly Leu Ala Gln Val
370 375

Ala Val Asn Thr Leu Pro Ser Ile Ile Phe Thr Ile Asn Ser Ile Ser
305 310 315 320

Tyr Thr Val Pro Ala Gln Ala Tyr Ile Leu Lys Gly Ser Arg Gly Arg
325 330 335

Cys Tyr Ser Thr Phe Gln Gly His Thr Met Ser Ser Ser Thr Glu Thr
340 345 350

Trp Ile Leu Gly Asp Val Phe Leu Ser Gln Tyr Phe Ser Val Phe Asp
355 360 365

Arg Gly Asn Asp Arg Ile Gly Leu Ala Gln Val Gly Thr Asp Tyr Lys
370 375 380

Asp Asp Asp Glu Ser Pro Lys Leu
385 390

<210> 38

<211> 388

<212> PRT

<213> Felis domestica

<400> 38

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20 25 30

Glu Lys Asp Arg Leu Lys Asp Phe Leu Glu Asn His Pro Tyr Asn Leu
35 40 45

Ala Tyr Lys Phe Val Asp Ser Val Asn Leu Asp Leu Gly Ile Tyr Phe
50 55 60

Glu Pro Met Arg Asn Tyr Leu Asp Leu Ala Tyr Val Gly Thr Ile Ser
65 70 75 80

Ile Gly Thr Pro Pro Gln Glu Phe Lys Val Ile Phe Asp Thr Gly Ser
85 90 95

Ser Asp Leu Trp Val Pro Ser Ile Tyr Cys Ser Ser Pro Ala Cys Ala
100 105 110

Asn His Asn Val Phe Asn Pro Leu Arg Ser Ser Thr Phe Arg Ile Ser

125

Arg Leu Tyr Phe Thr Val Phe Asp Arg Glu Asn Asn Arg Ile Gly Leu

Ala Leu Ala Val
385

<210> 39
<211> 1158
<212> DNA
<213> bovidae

<400> 39
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tgaaacaattt cttgaaggag gatccttaca gactgtccca gatttctttt cgtggctcaa 180
atctaactat tcaccgctg agaaacatca gagatatctt ctatgtcggg aacatcacca 240
ttggaacacc cctcaggaa ttccaggta tctttgacac aggcctcatct gacttgtggg 300
tgccctcgat cgattgcaac agtacatcct gtgctacaca tgttaggttc agacatcttc 360
agtcttccac ctccggcct accaataaga ccttcaggat catctatgga tctggggaga 420
tgaaaggagt tattgcttat gacacagttc ggattgggga ccttgtaagt accgaccagc 480
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gcttgaacta ctggaacctt tctgggtcta aggccatgcc catctttgac aagctgaaga 600
atgaaggcgc catttctgag cctgtttttt ccttctactt gagcaaaagc aagcgggagg 660
gcagtgtggt gatgtttggt ggggtggacc accgctacta caaggagag ctcaagtggg 720
taccactgat ccaagcagtc gactggagtg tacacgtaga ccgcatcacc atgaacagag 780
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aaggcccaag aagactgatt gataacatac agaggatcat cggcgccacc ccacgggggt 900
ccaagtacta cgtttcatgt tctgcggtea atatcctgcc ctctattatc ttaccatca 960
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cacgggcagt gtaactcg 1158

<210> 40
<211> 380
<212> PRT
<213> bovidae

<400> 40
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Val Lys Ile Pro Leu Arg Arg Val Lys Thr Met Arg Lys Thr Leu Ser
20 25 30
Gly Lys Asn Met Leu Asn Asn Phe Leu Lys Glu Asp Pro Tyr Arg Leu
35 40 45

Asn	Ile	Arg	Asp	Ile	Phe	Tyr	Val	Gly	Asn	Ile	Thr	Ile	Gly	Thr	Pro
65					70					75					80
Pro	Gln	Glu	Phe	Gln	Val	Ile	Phe	Asp	Thr	Gly	Ser	Ser	Asp	Leu	Trp
				85					90					95	
Val	Pro	Ser	Ile	Asp	Cys	Asn	Ser	Thr	Ser	Cys	Ala	Thr	His	Val	Arg
			100					105					110		
Phe	Arg	His	Leu	Gln	Ser	Ser	Thr	Phe	Arg	Pro	Thr	Asn	Lys	Thr	Phe
	115						120					125			
Arg	Ile	Tyr	Gly	Ser	Gly	Arg	Met	Asn	Gly	Val	Ile	Ala	Tyr	Asp	
	130				135					140					
Thr	Val	Arg	Ile	Gly	Asp	Leu	Val	Ser	Thr	Asp	Gln	Pro	Phe	Gly	Leu
145					150					155					160
Ser	Val	Glu	Glu	Tyr	Gly	Phe	Ala	His	Lys	Arg	Phe	Asp	Gly	Ile	Leu
					165				170					175	
Gly	Leu	Asn	Tyr	Trp	Asn	Leu	Ser	Trp	Ser	Lys	Ala	Met	Pro	Ile	Phe
			180					185					190		
Asp	Lys	Leu	Lys	Asn	Glu	Gly	Ala	Ile	Ser	Glu	Pro	Val	Phe	Ala	Phe
	195						200					205			
Tyr	Leu	Ser	Lys	Asp	Lys	Arg	Glu	Gly	Ser	Val	Val	Met	Phe	Gly	Gly
	210					215					220				
Val	Asp	His	Arg	Tyr	Tyr	Lys	Gly	Glu	Leu	Lys	Trp	Val	Pro	Leu	Ile
225					230					235					240
Gln	Ala	Val	Asp	Trp	Ser	Val	His	Val	Asp	Arg	Ile	Thr	Met	Asn	Arg
				245					250					255	
Glu	Val	Ile	Ala	Cys	Ser	Glu	Gly	Cys	Ala	Ala	Leu	Val	Asp	Thr	Gly
			260					265					270		
Ser	Ser	Asn	Ile	Gln	Gly	Pro	Arg	Arg	Leu	Ile	Asp	Asn	Ile	Gln	Arg
	275						280					285			
Ile	Ile	Gly	Ala	Thr	Pro	Arg	Gly	Ser	Lys	Tyr	Tyr	Val	Ser	Cys	Ser
	290					295					300				

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Met	Lys	Trp	Ile	Val	Leu	Leu	Gly	Leu	Met	Ala	Phe	Ser	Glu	Cys	Leu
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Val	Gln	Ile	Pro	Leu	Arg	Gln	Val	Lys	Thr	Met	Arg	Lys	Thr	Leu	Ser
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Gly	Lys	Asn	Met	Leu	Lys	Asn	Phe	Leu	Lys	Glu	His	Pro	Tyr	Arg	Leu
		35					40					45			
Ser	Gln	Ile	Ser	Phe	Arg	Gly	Ser	Asn	Leu	Thr	Ile	His	Pro	Leu	Arg
	50					55					60				
Asn	Ile	Met	Asn	Leu	Val	Tyr	Val	Gly	Asn	Ile	Thr	Ile	Gly	Thr	Pro
65				70						75					80
Pro	Gln	Glu	Phe	Gln	Val	Val	Phe	Asp	Thr	Gly	Ser	Ser	Asp	Leu	Trp
				85				90						95	
Val	Pro	Ser	Phe	Cys	Thr	Met	Pro	Ala	Cys	Ser	Ala	Pro	Val	Trp	Phe
			100					105					110		
Arg	Gln	Leu	Gln	Ser	Ser	Thr	Phe	Gln	Pro	Thr	Asn	Lys	Thr	Phe	Thr
		115					120					125			
Ile	Thr	Tyr	Gly	Ser	Gly	Ser	Met	Lys	Gly	Phe	Leu	Ala	Tyr	Asp	Thr
	130				135						140				
Val	Arg	Ile	Gly	Asp	Leu	Val	Ser	Thr	Asp	Gln	Pro	Phe	Gly	Leu	Ser
145				150						155					160
Val	Val	Glu	Tyr	Gly	Leu	Glu	Gly	Arg	Asn	Tyr	Asp	Gly	Ala	Leu	Gly
				165				170						175	
Leu	Asn	Tyr	Pro	Asn	Ile	Ser	Phe	Ser	Gly	Ala	Ile	Pro	Ile	Phe	Asp
		180						185					190		
Asn	Leu	Lys	Asn	Gln	Gly	Ala	Ile	Ser	Glu	Pro	Val	Phe	Ala	Phe	Tyr
	195						200					205			
Leu	Ser	Lys	Asn	Lys	Gln	Glu	Gly	Ser	Val	Val	Met	Phe	Gly	Gly	Val
210					215						220				
Asp	His	Gln	Tyr	Tyr	Lys	Gly	Glu	Leu	Asn	Trp	Ile	Pro	Leu	Ile	Glu
225					230					235					240
Ala	Gly	Glu	Trp	Arg	Val	His	Met	Asp	Arg	Ile	Ser	Met	Lys	Arg	Thr
				245				250						255	

Val Ile Ala Cys Ser Asp Gly Cys Glu Ala Leu Val His Thr Gly Thr
260 265 270

Ser His Ile Glu Gly Pro Gly Arg Leu Val Asn Asn Ile His Arg Leu
275 280 285

Ile Arg Thr Arg Pro Phe Asp Ser Lys His Tyr Val Ser Cys Phe Ala
290 295 300

Thr Asn Thr Leu Pro Ser Ile Thr Phe Ile Ile Asn Gly Ile Lys Tyr
305 310 315 320

Pro Met Thr Ala Arg Ala Tyr Ile Phe Lys Asp Ser Arg Gly Arg Cys
325 330 335

Tyr Ser Ala Phe Lys Glu Asn Thr Val Arg Thr Ser Arg Glu Thr Trp
340 345 350

Ile Leu Gly Asp Ala Phe Leu Arg Arg Tyr Phe Ser Val Phe Asp Arg
355 360 365

Gly Asn Asp Arg Ile Gly Leu Ala Arg Ala Val
370 375

<210> 43

<211> 1154

<212> DNA

<213> bovidae

<400> 43

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atctaaactat	tcacccgcgt	agaaacatca	gggattttgtt	ctacatgggt	aacatcacca	240
ttgggaacccc	ccctcaggaa	tctctgtgtt	tctttgcac	aggyctcatct	gactgtgtgg	300
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taccattgat	tgaagcgggt	gactggattg	tacgatgata	ctgcattctc	atgagaagaa	780
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aaggcccaaa	aacactggtt	gataacatcc	agaagctcat	ctgtgcacct	ctacggggtt	900
tcaagcatca	cgtttcatgt	tcttcagctc	ataccctgcc	ccttattaac	ttaccacata	960

195

200

205

Tyr Leu Ser Lys Asp Glu Gln Glu Gly Ser Val Val Met Phe Gly Gly
210 215 220

Val Asp His Arg Tyr Tyr Lys Gly Glu Leu Lys Trp Val Pro Leu Ile
225 230 235 240

Glu Ala Gly Asp Trp Ile Val His Met Asp Cys Ile Ser Met Arg Arg
245 250 255

Lys Val Ile Ala Cys Ser Gly Gly Cys Glu Ala Val Val Asp Thr Gly
260 265 270

Val Ser Met Ile Lys Gly Pro Lys Thr Leu Val Asp Asn Ile Gln Lys
275 280 285

Leu Ile Gly Ala Thr Leu Arg Gly Phe Lys His Tyr Val Ser Cys Ser
290 295 300

Ala Val Asp Thr Leu Pro Ser Ile Thr Phe Thr Ile Asn Gly Ile Asn
305 310 315 320

Tyr Arg Val Pro Ala Arg Ala Tyr Ile Leu Lys Asp Ser Arg Gly Cys
325 330 335

Cys Tyr Ser Ser Phe Gln Glu Thr Thr Val Ser Pro Ser Thr Glu Thr
340 345 350

Trp Ile Leu Gly Asp Val Phe Leu Arg Leu Tyr Phe Ser Val Phe Asp
355 360 365

Arg Gly Asn Asp Arg Ile Gly Leu Ala Arg Ala Val
370 375 380

<210> 45

<211> 1168

<212> DNA

<213> bovidae

<400> 45

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tgccctctga cttttgcacc agtccagcct gttctacaca cgtaggttc agacattttc 360

agtcttccac cttccggcct accactaaga ccttcaggat catctatgga tctgggagaa 420
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 <211> 380
 <212> PRT
 <213> bovidae

<400> 46
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 35 40 45
 Ser His Ile Ser Phe Arg Gly Ser Asn Leu Thr Thr Leu Pro Leu Arg
 50 55 60
 Asn Ile Arg Asp Met Leu Tyr Val Gly Asn Ile Thr Ile Gly Thr Pro
 65 70 75 80
 Pro Gln Glu Phe Gln Val Val Phe Asp Thr Gly Ser Ser Asp Leu Trp
 85 90 95
 Val Pro Ser Asp Phe Cys Thr Ser Pro Ala Cys Ser Thr His Val Arg
 100 105 110
 Phe Arg His Phe Gln Ser Ser Thr Phe Arg Pro Thr Thr Lys Thr Phe
 115 120 125
 Arg Ile Ile Tyr Gly Ser Gly Arg Met Lys Gly Val Val Ala His Asp
 130 135 140

Thr Val Arg Ile Gly Asn Leu Val Ser Thr Asp Gln Pro Phe Gly Leu
145 150 155 160

Ser Met Ala Glu Tyr Gly Leu Glu Ser Arg Arg Phe Asp Gly Ile Leu
165 170 175

Gly Leu Asn Tyr Pro Asn Leu Ser Cys Ser Gly Ala Ile Pro Ile Phe
180 185 190

Asp Lys Leu Lys Asn Gln Gly Ala Ile Ser Asp Pro Ile Phe Ala Phe
195 200 205

Tyr Leu Ser Lys Asp Lys Arg Glu Gly Ser Val Val Met Phe Gly Gly
210 215 220

Val Asp His Arg Tyr Tyr Lys Gly Glu Leu Asn Trp Val Pro Leu Ile
225 230 235 240

Arg Ala Gly Asp Trp Ile Val His Val Asp Arg Ile Thr Met Lys Arg
245 250 255

Glu Val Ile Ala Cys Ser Asp Gly Cys Ala Ala Leu Val Asp Thr Gly
260 265 270

Thr Ser Leu Ile Gln Gly Pro Gly Arg Val Ile Asp Asn Ile His Lys
275 280 285

Leu Ile Gly Ala Thr Pro Arg Gly Ser Lys His Tyr Val Ser Cys Ser
290 295 300

Val Val Asn Thr Leu Pro Ser Ile Ile Phe Thr Ile Asn Gly Ile Asn
305 310 315 320

Tyr Pro Val Pro Ala Pro Ala Tyr Ile Leu Lys Asp Ser Arg Gly Tyr
325 330 335

Cys Tyr Thr Ala Phe Lys Glu Gln Arg Val Arg Arg Ser Thr Glu Ser
340 345 350

Trp Leu Leu Gly Asp Val Phe Leu Arg Leu Tyr Phe Ser Val Phe Asp
355 360 365

Arg Gly Asn Asp Arg Ile Gly Leu Ala Arg Ala Val
370 375 380

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<211> 1158

<212> DNA
<213> bovidae

<400> 47
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acgtcttccc gaggtgtat ttctcagctt ttgactgagg aatgacaggg attggcctgg 1140
cacgggcagt gtaactcg 1158

<210> 48
<211> 380
<212> PRT
<213> bovidae

<400> 48
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20 25 30
Gly Lys Asn Thr Leu Asn Asn Phe Leu Lys Glu His Thr Tyr Ser Leu
35 40 45
Ser Gln Ile Ser Ser Arg Gly Ser Asn Leu Thr Ile His Pro Leu Arg
50 55 60
Asn Ile Met Asp Met Leu Tyr Val Gly Asn Ile Thr Ile Gly Thr Pro
65 70 75 80
Pro Gln Glu Phe Gln Val Val Phe Asp Thr Gly Ser Ser Asp Leu Trp
85 90 95

Val Pro Ser Val Phe Cys Gln Ser Leu Ala Cys Ala Thr Lys Val Met
100 105 110

Phe Ile His Leu His Ser Ser Thr Phe Arg His Thr Gln Lys Val Phe
115 120 125

Asn Ile Lys Tyr Asn Thr Gly Arg Met Lys Gly Leu Leu Val Tyr Asp
130 135 140

Thr Val Arg Ile Gly Asp Leu Val Ser Thr Asp Gln Pro Phe Cys Ile
145 150 155 160

Ser Leu Ala Glu Val Gly Phe Asp Gly Ile Pro Phe Asp Gly Val Leu
165 170 175

Gly Leu Asn Tyr Pro Asn Met Ser Phe Ser Gly Ala Ile Pro Ile Phe
180 185 190

Asp Asn Leu Lys Asn Glu Gly Ala Ile Ser Glu Pro Val Phe Ala Phe
195 200 205

Tyr Leu Ser Lys Asp Lys Arg Glu Gly Ser Val Val Met Phe Gly Gly
210 215 220

Val Asp His Arg Tyr Tyr Lys Gly Glu Leu Asn Trp Val Pro Leu Ile
225 230 235 240

Gln Ala Gly Gly Trp Thr Val His Val Asp Arg Ile Ser Met Lys Arg
245 250 255

Lys Ile Ile Ala Cys Ser Gly Gly Cys Glu Ala Leu Val Asp Thr Gly
260 265 270

Thr Ala Leu Ile Lys Gly Pro Arg Arg Leu Val Asn Asn Ile Gln Lys
275 280 285

Leu Ile Gly Thr Thr Pro Arg Gly Ser Lys His Tyr Val Ser Cys Ser
290 295 300

Val Val Asn Thr Leu Pro Ser Ile Ile Phe Thr Ile Asn Gly Ile Asn
305 310 315 320

Tyr Pro Val Pro Ala Arg Ala Tyr Ile Leu Lys Asp Ser Glu Ser Asn
325 330 335

Cys Tyr Thr Thr Phe Lys Glu Asn Thr Val Arg Thr Ser Arg Glu Thr
340 345 350

00273154 034000

Trp Ile Leu Gly Asp Val Phe Pro Arg Leu Tyr Phe Ser Val Phe Asp
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Arg Gly Asn Asp Arg Ile Gly Leu Ala Arg Ala Val
 370 375 380

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 <211> 1158
 <212> DNA
 <213> bovidae

<400> 49
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 ctgaacaatt tcctgaagga acatgcttac agactgtccc agatttcttc ttgtggctca 180
 aatctaactt tccacccctt gagaacatc aaggataggc tctacgtggg taacatcacc 240
 attggaacac cccctcaaga attccaggtt atctttgaca caggctcatc tgacttgttg 300
 gtgacctccg tcttttgcac cagcccaacc tgttctaac atgttatgtt cagacatttt 360
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 ggcttgaact accccaaact atccttctct ggagccattc ccattttga caacctgagg 600
 aatcaagggt ccatttctga gcctgttttt gccttctact tgagcaaaag cgagcaggag 660
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 aaggttattg ctgtctctgg tggctgcaag gccgttggg acaccgggac atcactgatt 840
 gaaggcccaa gaagactggt caataacata cagaagctca tcagagccat gccacggggt 900
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 aaaggcatca actaccagtg gccagctcaa gctacatcc tcaaggattc tagaggccac 1020
 tgctatacca cctttaaaga ggacagattg agtccacat ctacagagac ctggatcctg 1080
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 <212> PRT
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Val Lys Ile Pro Leu Arg Arg Val Lys Thr Met Arg Lys Thr Leu Ser
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Gly Lys Asn Ile Leu Asn Asn Phe Leu Lys Glu His Ala Tyr Arg Leu

45

Leu Ile Arg Ala Met Pro Arg Gly Ser Glu Tyr Tyr Val Ser Cys Ser

Ala Val Asn Thr Leu Pro Pro Ile Ile Phe Thr Ile Lys Gly Ile Asn
305 310 315 320

Tyr Pro Val Pro Ala Gln Ala Tyr Ile Leu Lys Asp Ser Arg Gly His
325 330 335

Cys Tyr Thr Thr Phe Lys Glu Asp Arg Leu Ser Pro Pro Ser Thr Glu
340 345 350

Thr Trp Ile Leu Gly Asp Val Phe Leu Arg Arg Tyr Phe Ser Val Phe
355 360 365

Asp Arg Gly Asn Asp Arg Ile Gly Leu Ala Arg Ala Val
370 375 380

<210> 51
<211> 1154
<212> DNA
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tgaacaattt cctgaaggaa catgcttaca gactgtccca gatttctttt cgtggctcaa 180
atctaactag tcacccgctg agaaacatca aggatttggt ctacctggct aatacacca 240
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agtcttcac cttccggctt accaataaga ccttcagcat cacctatgga tctgggagaa 420
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gcagtgtggt gatgtttggt ggggtggacc atcgctatta caggggaaag ctcaactggg 720
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gctatagcac ctttaaagag atcccattga gtccaactac agagtctctg atgctcggtg 1080
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<210> 52
<211> 380
<212> PRT

<213> bovidae

<400> 52

Met Lys Trp Leu Val Val Leu Gly Leu Val Ala Phe Ser Glu Cys Ile
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Val Lys Ile Pro Leu Arg Arg Val Lys Thr Met Arg Lys Ala Leu Ser
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Gly Lys Asn Met Leu Asn Asn Phe Leu Lys Glu His Ala Tyr Arg Leu
35 40 45

Ser Gln Ile Ser Phe Arg Gly Ser Asn Leu Thr Ser His Pro Leu Arg
50 55 60

Asn Ile Lys Asp Leu Val Tyr Leu Ala Asn Ile Thr Ile Gly Thr Pro
65 70 75 80

Pro Gln Glu Phe Gln Val Phe Leu Asp Thr Gly Ser Ser Asp Leu Trp
85 90 95

Val Pro Ser Asp Phe Cys Thr Ser Pro Gly Cys Ser Lys His Val Arg
100 105 110

Phe Arg His Leu Gln Ser Ser Thr Phe Arg Leu Thr Asn Lys Thr Phe
115 120 125

Ser Ile Thr Tyr Gly Ser Gly Arg Ile Lys Gly Val Val Ala His Asp
130 135 140

Thr Val Arg Ile Gly Asp Leu Val Ser Thr Asp Gln Pro Phe Ser Leu
145 150 155 160

Ser Met Ala Glu Tyr Gly Leu Glu His Ile Pro Phe Asp Gly Ile Leu
165 170 175

Gly Leu Asn Tyr Pro Asn Val Ser Ser Ser Gly Ala Ile Pro Ile Phe
180 185 190

Asp Lys Leu Lys Asn Gln Gly Ala Ile Ser Glu Pro Val Phe Ala Phe
195 200 205

Tyr Leu Ser Lys Asp Lys Gln Glu Gly Ser Val Val Met Phe Gly Gly
210 215 220

Val Asp His Arg Tyr Tyr Arg Gly Lys Leu Asn Trp Val Pro Leu Ile
225 230 235 240

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Gln Ala Gly Asn Trp Ile Ile His Met Asp Ser Ile Ser Ile Glu Arg
245 250 255

Lys Val Ile Ala Cys Ser Gly Gly Cys Val Ala Phe Val Asp Ile Gly
260 265 270

Thr Ala Phe Ile Glu Gly Pro Lys Pro Leu Val Asp Asn Met Gln Lys
275 280 285

Leu Ile Arg Ala Lys Pro Trp Arg Ser Lys His Tyr Val Ser Cys Ser
290 295 300

Ala Val Asn Thr Leu Pro Ser Ile Thr Phe Thr Ile Asn Gly Ile Asn
305 310 315 320

Tyr Pro Val Pro Gly Arg Ala Tyr Ile Leu Lys Asp Ser Arg Arg Arg
325 330 335

Cys Tyr Ser Thr Phe Lys Glu Ile Pro Leu Ser Pro Thr Thr Glu Phe
340 345 350

Trp Met Leu Gly Asp Val Phe Leu Arg Leu Tyr Phe Ser Val Phe Asp
355 360 365

Arg Gly Asn Asp Arg Ile Gly Leu Ala Arg Ala Val
370 375 380

<210> 53

<211> 1154

<212> DNA

<213> bovidae

<400> 53

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tgaacaattt cctgaaggag cctccttaca aactgtccca gatttctttt cgtgggtcaa 180
atctaaccac tctcccatg aggaacatct gggatatatt ctacataagt accatcaca 240
ttggaacacc cctcaggaa ttccaggttg tctttgacac agcctcatct gacttgtggg 300
tgccctccat catttgcaac agctcaacct gttctacaca cgttagatcc agacatcgct 360
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tgaaaggagt tgtttttcat gacacagttc ggattgggga ccttgtaagt actgaccagc 480
cattcgttct aagcgtggcg gaatacgggt ttgagggcag aagatttgat ggtgtcttgg 540
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gcagtgtggt gatgtttggt ggggtggacc accgctacta caaaggagag ctcaactggg 720
taccattgat ccgagcgggt gactggagtg tacacgtaga ccgcatcacc atgaaggag 780
aggttatttg ttgttctgat ggctgcacgg ccatggttga caccgggtca tcaaatatcc 840

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 gctacaccac ctttaaagag aaaagggtaa ggagatctac ggagttctgg atcctgggtg 1080
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<210> 54

<211> 380

<212> PRT

<213> bovidae

<400> 54

Met Lys Trp Leu Val Leu Leu Gly Leu Val Ala Phe Ser Glu Cys Ile
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Phe Lys Ile Pro Leu Arg Arg Val Lys Thr Met Arg Lys Thr Leu Ser
 20 25 30

Gly Lys Asn Met Leu Asn Asn Phe Leu Lys Glu His Pro Tyr Lys Leu
 35 40 45

Ser Gln Ile Ser Phe Arg Gly Ser Asn Leu Thr Thr Leu Pro Leu Arg
 50 55 60

Asn Ile Trp Asp Ile Phe Tyr Ile Gly Thr Ile Thr Ile Gly Thr Pro
 65 70 75 80

Pro Gln Glu Phe Gln Val Val Phe Asp Thr Ala Ser Ser Asp Leu Trp
 85 90 95

Val Pro Ser Ile Ile Cys Asn Ser Ser Thr Cys Ser Thr His Val Arg
 100 105 110

Phe Arg His Arg Gln Ser Ser Thr Phe Arg Leu Thr Asn Lys Thr Phe
 115 120 125

Gly Ile Thr Tyr Gly Ser Gly Arg Met Lys Gly Val Val Val His Asp
 130 135 140

Thr Val Arg Ile Gly Asp Leu Val Ser Thr Asp Gln Pro Phe Gly Leu
 145 150 155 160

Ser Val Ala Glu Tyr Gly Phe Glu Gly Arg Arg Phe Asp Gly Val Leu
 165 170 175

Gly Leu Asn Tyr Pro Asn Ile Ser Phe Ser Lys Ala Ile Pro Ile Phe
 180 185 190

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Asp Lys Leu Lys Asn Glu Gly Ala Ile Ser Glu Pro Val Phe Ala Phe
195 200 205

Tyr Leu Ser Lys Asp Lys Gln Lys Gly Ser Val Val Met Phe Gly Gly
210 215 220

Val Asp His Arg Tyr Tyr Lys Gly Glu Leu Asn Trp Val Pro Leu Ile
225 230 235 240

Arg Ala Gly Asp Trp Ser Val His Val Asp Arg Ile Thr Met Lys Gly
245 250 255

Glu Val Ile Gly Cys Ser Asp Gly Cys Thr Ala Met Val Asp Thr Gly
260 265 270

Ser Ser Asn Ile Gln Gly Pro Gly Arg Val Ile Asp Asn Ile His Lys
275 280 285

Leu Ile Gly Ala Thr Pro Arg Gly Ser Lys His Tyr Val Ser Cys Ser
290 295 300

Ala Val Ser Ala Leu Pro Ser Val Val Phe Thr Ile Asn Gly Ile Asn
305 310 315 320

Tyr Pro Val Pro Ala Arg Ala Tyr Val Leu Lys Asp Phe Thr Gly Asn
325 330 335

Cys Tyr Thr Thr Phe Lys Glu Lys Arg Val Arg Arg Ser Thr Glu Phe
340 345 350

Trp Ile Leu Gly Glu Ala Phe Leu Arg Leu Tyr Phe Ser Val Phe Asp
355 360 365

Arg Gly Asn Asp Arg Ile Gly Leu Ala Arg Ala Val
370 375 380

<210> 55

<211> 1320

<212> DNA

<213> bovidae

<400> 55

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catgctgaac aatttcttga aggagcatgg taacagattg tccaagattt cttttcgtgg 180
ctcaaatcta actactctcc cgctgagaaa catcgaggat ttgatgtacy tgggtaacat 240

Ser Ile Thr Tyr Gly Ser Gly Arg Met Arg Gly Val Val Val His Asp
130 135 140

Thr Val Arg Ile Gly Asp Leu Val Ser Thr Asp Gln Pro Phe Gly Leu
145 150 155 160

Ser Val Ser Glu Tyr Gly Phe Lys Asp Arg Ala Tyr Asp Gly Ile Leu
165 170 175

Gly Leu Asn Tyr Pro Asp Glu Ser Phe Ser Glu Ala Ile Pro Ile Phe
180 185 190

Asp Lys Leu Lys Asn Glu Gly Ala Ile Ser Glu Pro Ile Phe Ala Phe
195 200 205

Tyr Leu Ser Lys Lys Lys Arg Glu Gly Ser Val Val Met Phe Gly Gly
210 215 220

Val Asp His Arg Tyr Tyr Lys Gly Glu Leu Asn Trp Val Pro Leu Ile
225 230 235 240

Glu Glu Gly Asp Trp Ser Val Arg Met Asp Gly Ile Ser Met Lys Thr
245 250 255

Lys Val Val Ala Cys Ser Asp Gly Cys Glu Ala Val Val Asp Thr Gly
260 265 270

Thr Ser Leu Ile Lys Gly Pro Arg Lys Leu Val Asn Lys Ile Gln Lys
275 280 285

Leu Ile Gly Ala Thr Pro Arg Gly Ser Lys His Tyr Val Tyr Cys Ser
290 295 300

Ala Val Asn Ala Leu Pro Ser Ile Ile Phe Thr Ile Asn Gly Ile Asn
305 310 315 320

Tyr Pro Val Pro Ala Arg Ala Tyr Ile Leu Lys Asp Ser Arg Gly Arg
325 330 335

Cys Tyr Thr Ala Phe Lys Lys Gln Arg Phe Ser Ser Ser Thr Glu Thr
340 345 350

Trp Leu Leu Gly Asp Ala Phe Leu Arg Val Tyr Phe Ser Val Phe Asp
355 360 365

Arg Gly Asn Gly Arg Ile Gly Leu Ala Gln Ala Val
370 375 380

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